THE MAGAZINE OF

Fantasy and Science Fiction

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35¢ NOVEMBER

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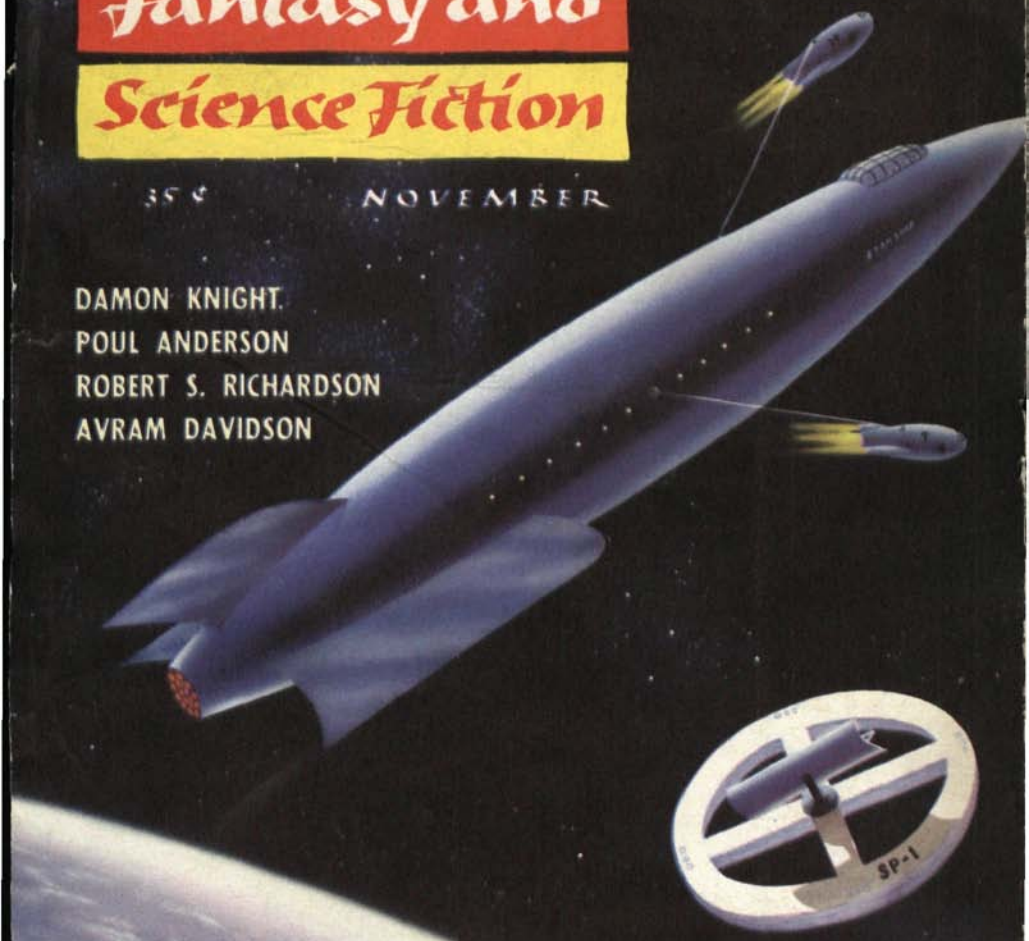

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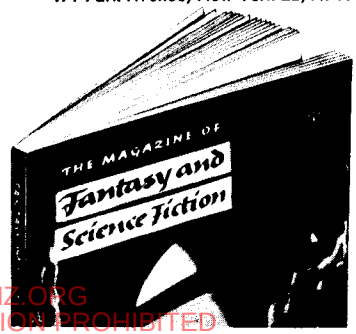

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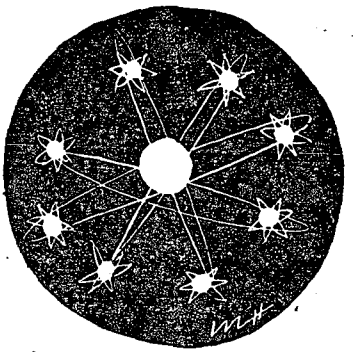

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THE MAGAZINE OF

Fantasy and Science Fiction

VOLUME 13, No. 5 NOVEMBER

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COVER PAINTING BY MORRIS SCOTT DOLLENS
(*Approaching the Space Station*)

Joseph W. Ferman, PUBLISHER *Anthony Boucher*, EDITOR

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The Horn of Plenty . . . the Miraculous Pitcher . . . the Purse of Fortunatus . . . all these are pre-scientific foreshadowings of the mighty symbol which science fiction knows as the Matter Duplicator. Damon Knight takes a new close look at this device, in both its theory (which he makes more plausible than it usually has seemed) and its symbolism, and suggests that its possessor may be not Fortunatus but Fortunato ("For the love of God, Montresor!"), bricked in and suffocated by a wealth beyond control.

A for Anything

by DAMON KNIGHT

"ἐν τούτῳ νίκα"

"In this, conquer"

—Words accompanying the vision of the Cross seen by Constantine, on the eve of his victory over Maxentius in 312.

THERE WAS A PIECE OF ORDINARY insulated wire—ten inches long, black, with the dull gleam of copper showing at each end. It hung straight down from one arm of a cross-shaped device that stood on a laboratory bench.

Three men stood looking at it in a curious self-conscious hush. Their heads were bent, arms folded akimbo. It was a piece of ordinary insulated wire, that had not been in existence ten seconds ago. They had watched it being born.

From the opposite arm of the cross hung an identical piece of wire—the model, of which the other was a copy. The two swung in the same rhythm, turning in opposite directions. Dave Ewing, Ph.D., found it made him dizzy to watch them, though he had had more time to get used to it than anybody.

Ewing's father said nothing; his heavy face was set in lines of discontent and disapproval—nostrils faintly arched, as if he had smelled something bad, but something that he was used to.

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The other visitor, Gilbert Wall, stooped slowly and brought his keen profile closer to the right-hand piece of wire.

"Do that again," he said between his teeth.

With a small screwdriver, Ewing loosened the terminals that held the wire. The wooden cross-arm supported two lengths of spiral sheathing—BX cable. From these the two ends of a loop of wire hung out, each terminating in a little square of milky glass coated with metal on both sides.

The terminals were sunk into this metal-glass-metal sandwich, so that anything hung from them was insulated from the central circuit—the loop of wire stapled to the cross. That was all there was of the device, except for a pair of dry cells, a resistor, and an ordinary mercury switch mounted on the upright post.

"Maybe something else will convince you better," Ewing said. He moved a step and loosened the other piece of wire from the left arm of the cross. "Have you got something personal—?"

Without answering, Wall began twisting a gold ring he wore on his left ring finger. It came off with difficulty. He gave it to Ewing—dull yellow gold, square-faced, with a Masonic symbol and a tiny inset diamond. Ewing took it, and used two short strands of bare copper wire to bind it to the left arm of the cross.

Wall settled himself close to the right arm, watching steadily.

Ewing reached out, flicked the switch on and immediately off again. He saw both the other men jump involuntarily.

There it was, where it hadn't been before: a gold ring, solid and heavy.

"You can touch it," he said. "Just pull it away from those little wires—they're wound loosely."

He removed the other ring, the original, and dropped it into Wall's palm beside the copy.

Staring at them, Wall murmured, "I couldn't see it happen. Fast! How long does it take, actually?"

"I don't know," Ewing answered, stuttering a little. "It may be instantaneous. Some of the math we have seems to point that way. But it's all very tentative. You have to remember, this is just since Wednesday afternoon. Two days."

"You didn't call me about it till this morning," said the hoarse baritone of Ewing's father. The tone was neutral, almost indifferent, but Ewing found himself stiffening.

He said, "Fay talked me into it against my better judgment. I didn't think it was a good idea to c-call you at all."

His father grimaced. "Why not?"

Ewing hesitated. "I was afraid it would give you heart failure."

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Wall was holding the rings side by side, comparing them. "It's backwards," he said quietly. "The inscription, inside the ring—it's backwards."

Ewing nodded. Wall was the kind of man, he had noticed, who not only said everything twice, but wanted you to say everything twice to him. "They come out reversed," he explained patiently, for the second time. "Mirror images. I could put that one back on the primary side, if you wanted, and make any number of copies that would be right side to."

Wall and the older man both looked up, as if at a signal.

Ewing looked back, a little uneasily. His father was grayer, but his square body looked as competent as ever, his mouth as firm. He was a self-educated man who had slogged his way up from a machine shop in Gary, Indiana, to a twenty-thousand-a-year, wall-to-wall-carpeting, Matisse-over-the desk executive job. He had a passionate belief in American industry, and he was bitterly disappointed in his one son. Nine years ago, when Ewing had turned down a promising job in industrial research to work on a grant from Clearwater, it had been the last straw. This was only the third time Ewing and his father had met since then.

Wall and the scientist were about the same age, just over thirty. Ewing was uncomfortably aware, as he usually was in company, that he looked more like an illiterate coal-heaver than a physicist; he was raw-boned and unnecessarily muscular around the jaw, and he didn't even wear glasses. Gilbert Wall, in contrast, looked like a prosperous actor: Hollywood drape suit, every blond hair in place, manicure and suntan; gold watchband, tieclip and cufflinks. His brown face was shiny and lean, as if his skin had turned to something harder than normal flesh. His teeth were too even and too white. He was not Ewing's idea of a big-business executive, but he was president, all the same, of the country's second biggest (and fastest growing) machine-tools company. Ewing's father worked for him. And they had both swooped down on Clearwater, California, all the way from Chicago, the moment Ewing had phoned his father to tell him about the Gismo.

Wall said, "You were laying for me. You had this ready for me."

Ewing didn't answer.

"No," said Wall after a moment, looking down at the rings. "You couldn't have known about the inscription. . . . You never even saw it, did you, Tim? I never showed it to you." He tossed the rings absently, one in each palm. "All right. I don't like it, but I believe it. You can do it." He grinned. "Now will you tell us how—in short words, if possible?"

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"Surely," Ewing said, hating himself immediately for the clerk's word. To make up for it, he pointed brusquely to chairs that were halfway across the room. "Drag those over and sit down."

Ewing started at the beginning —the Schellhammer sandwiches, developed as a research by-product two years ago by a graduate student at Purdue: the little square pieces of Corning's odd crystalline glass, plated on one side with rhodium and on the other with palladium. There was a kind of pseudo-induction, the Schellhammer effect, that went with them. Ewing had been working on that for a little over a year and a half, trying to find out what it was, and he had been lucky.

He drew diagrams of his first successful apparatus, a breadboard circuit which had most improbably delivered more current than was fed to it. He tried to explain the intuition that had led him past that paradox to the Gismo itself, whose ultimately paradoxical circuit reproduced not only electron flows, but things—pieces of wire, bottle openers, voltmeters, gold rings.

"Tell me this," said Wall. "Where do they *come* from?"

Ewing's mouth was dry. Conscious of time passed, he looked up and discovered that it was late afternoon. Ruddy sunlight was slanting through the big western windows, making one side of his father's face a theatrical orange-pink, and turning the bleached hairs on the backs of Wall's hands to tiny incandescent wires.

Feeling a little light-headed, Ewing turned to see what the light had done to the Gismo. He had almost expected to see it in that moment haloed and glowing, its cross shape transfigured with some supermundane Meaning; but the light missed it. It stood in shadow on the scarred black-topped bench, looking like any other piece of makeshift equipment, ugly and uncommunicative.

Turning back to Wall, he said, "It's hard to tell you. Have you read anything about the Cambridge group's theory of continuous creation?"

Wall winced. "Creation of what?"

"Matter. But never mind. That would have been the long way around, anyhow." Ewing turned on the table light and found a clean sheet of scratch paper. "Without the math, all I can do is give you a close analogy. Let's see." He sketched what looked like a dishevelled dandelion head, and then another partly overlapping it, so that one or two strands of each lay parallel. "Now, here's you," he said, drawing one single line of one dandelion head darker. "Here, you're born"—he indicated the inner end of the line—"and here, you die. Now, all these other lines here, radiating from the same cen-

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hey're you, too—an infinite old of you. Each line repre- one Gilbert Wall, do you

ll smiled. "Those are all me? would come in handy at a nolders' meeting. Very handy, hen who's that other bunch —Marilyn Monroe, I hope?"

re," said Ewing uncomfort- He pointed with the pencil: ilyn Monroe—Marilyn Mon- an infinite number of her. ow, you notice there's only you, and one of her, that lie y the same plane."

" said Wall, grinning las- isly.

his annoyance, Ewing found elf blushing. He made an ir- d dent in the paper with his l point. "All right, but if you mind, I'm trying to explain thing to you."

ght," said Wall solemnly. ot."

ll right. Now so far as you're rned, there's only one Gilbert in the universe. All these oth- are just theoretical—might- beens. Same with . . . this person here."

es, I see that. That's clear."

ut now see if you can imagine These two manifolds have a onship such that each line in lies—is parallel to—one and one line in the other. In other ls, it depends on your point iew. Here's Wall number one sand sixty-one, let's say, and here's"—he paused, and went on bravely—"Marilyn Monroe number two million and seventy-two. From your viewpoint, they point off in totally different directions—they never can meet. In fact, they don't even exist. But from their viewpoint, they're together—*they're* real—and it's you two that diverge."

Wall looked patient but perplexed. "And so?"

"Well, just that many cosmologists are coming around to this picture of the universe. This"—Ewing drew a heavy line around the two parallel marks—"would represent all that we know about reality. Because it isn't just the two manifolds of you and Monroe that meet here, but everything—dogs, trees, chewing gum. Stars. Movie theaters. One of everything, out of a possible infinity. So when you ask me where the extra ring came from, or whatever, I can say to you that maybe we rotated it in from one of these other space-times. We caused one little speck of matter to move from one line to the other. In the old physics, that looks like a violation of the laws of conservation of matter and energy—but in this cosmology, it isn't, at all. The books still balance, matter is still conserved: we've just moved an item from one column to another."

Wall was nodding with polite respect, as if Ewing had mentioned conservation of wild life, or

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some other worthy cause. "Then what I gather is this: that there's no limit to it—no strings attached. You can go on indefinitely—nothing's going to stop you."

"That's right."

"Now," said Wall, "there is one question in my mind, Dr. Ewing. And it is this. What are you planning to do with your device?"

The two of them—Wall and Ewing's father—leaned forward slightly. The silence was absolute.

"Publish," said Ewing.

He opened the desk drawer, took out a sheaf of typescript and showed it to them. "This is the rough draft of my paper. It's almost finished."

His father's lips had tightened and grown pale. "Just like that?" he asked sharply.

"No, please, Tim, let me." Wall put his hand flat on the desk top, and said reasonably, "Have you thought about what will happen when you do that?"

"A little," said Ewing curtly. Wall was rubbing him the wrong way, somehow; he must have stirred up some old buried dislike of authority. The bright young teacher in the Sunday school class? The policeman, that time he blew out the cellar windows trying to make guncotton? Somebody—somebody slick, and ignorant, and self-assured.

"Let me sketch it in for you," Wall said. "Leaving other nations out of it for the moment, do you know the value of the gross national product in this country day? Four hundred fifty *billion dollars* a year. Think about it. What will that value amount to a month after you release the machine?" He began ticking off his points on his fingers. "Manufacturing. Tell me this: is there any limit to the size or complexity of things your Gismo can make?"

Ewing hesitated. "Eventually probably not. Not complexity, certainly. There are two difficulties about size, but I don't think either one is insuperable. For one thing, there's the air compression [illegible] effect that becomes noticeable in larger objects, but that isn't serious. Then there's the problem of contact—the effect appears to be limited only by contact—but that can be solved—"

Wall interrupted, "I'm sure you can. I believe you. OK! Manufacturing . . . *out*. Ewing, this knocks out about one third of your national product, right there." He pressed down another finger. "Agriculture. How about it? Can duplicated food all right to eat? Is it not poisonous? All the vitamins?"

"We think so," said Ewing. "But this will have to be tested thoroughly, of course, but—"

"But you don't know any reason why it shouldn't be edible?"

"No."

"All right, let's say it is. Agriculture . . . *out*. Just like that. There's about a tenth of the total

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gone." Another finger. "Transportation and distribution. What for? You don't have to ship raw materials or parts or supplies or finished products—just connect a sample to that machine wherever you are, and turn out whatever you want, in one simple, easy, clean operation. Am I right?"

"Yes. And there's a possibility, too, that we may be able to develop an instantaneous-transport device out of this."

Wall shrugged helplessly. "Government," he said after a moment. "About a sixth of the national income goes to government. But not more. Who'll pay taxes, on what? And what'll they use for money?" He pulled a handful of change out of his pocket and slapped it down rattling on the table. "What good is it? With your Gismo I can make all I want, so can you, so can any idiot in the gutter." He clenched a fist. "Mining—who needs it? Construction—power and gas—trade—finance." A sweeping gesture. "Out the window. Have you really thought about all that? And are you willing to have that on your conscience?"

The two of them were glaring at him, Ewing discovered, as if he were a sneak thief in a police station. "If you will c-climb down off that soapbox," he said with an effort. Damn; there was his stutter again. If he lost his temper, it would get worse. . . . "I'm willing to talk to you about this," he went on. "I've already given you a good deal of my time, as a favor—but you're not going to lecture me. If we can't agree on that, out you go, I'm tired of you."

He discovered himself angrier at the end than when he started. It had had the same effect on the other two; Wall's narrow lips were tight.

The older man's face had darkened apoplectically. "I'm ashamed to call you my son," he said abruptly in a choked voice. His lips writhed; sickened, Ewing saw his yellow teeth bright against the gorged gums. He was trembling with rage, eyes starting out, a heavy vein bulging on his forehead. He brushed away Wall's hand. "Let me tell you this. Plenty of little squirts like you have tried to destroy this country before. The commies tried it, and the unions tried it, and the little snot-nosed clerks in the war bureaus, they tried it. I never thought my own son would try it, but let me tell you, you won't get away with it either. If I have to strangle you to death with my own hands—"

"Tim!" said Wall sharply.

Ewing's chest was knotted with anguish and horror. Through that, and the answering pulse of anger that squeezed his temples, he was aware that his father was standing up slowly, eyes blinking away sudden tears, his mouth slack and

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quivering. All at once his thinned hair was obvious, and the sagging creased dewlaps under his chin, the wrinkled unsure hands.

"Why don't you wait for me in the car a minute, Tim?" Wall was saying. "Here, let me give you a hand—"

"I don't need any help," said Ewing's father, and shuffled away out of the room, not looking back.

Ewing watched him go, with pity rising in him. "He's an old man," he said wonderingly.

Wall was tapping a cigarette too hard on the table. He closed his gold case with a snap. "He wasn't an old man this morning," Wall said. "He was the best executive I had." He lit the cigarette, inhaled and jetted smoke, and stared at Ewing with pure dislike.

All the emotion had drained out of Ewing. He pushed himself back from the desk. "This is a waste of time," he said.

"It may be, but give me a minute." Wall's eyes were narrowed behind the wavering trail of smoke from his cigarette. "Let me try, once, to make you see how I feel about this thing."

Ewing drew a deep breath. "If you would pause long enough to let me tell you how *I* feel about it—"

"I don't give a tinker's dam how you feel!" said Wall violently. "You've got the responsibility. If you shove a knife in my ribs, you think I care what your reasons may be? Through some goddamn miserable accident, you've got a thing in your hands that can pull the switch on a hundred and eighty million people. Well, before you pull it, you've got a responsibility to listen to their side. And you're going to listen."

Ewing sat still a moment. Then, "Damned if I am," he said angrily. "Come b-back when you get elected to speak for that many people." He rose abruptly, stalked to the door and opened it. "Meanwhile, there's the d-door."

He waited. Wall sat frozen at the table, staring at him as if he had not heard. "Or if you'd r-rather be thrown out," said Ewing recklessly, "I can manage that t-too."

A dead-still second ticked past. Slowly Wall stood up, trembling and tight-lipped with fury. Slowly he buttoned his jacket and adjusted his cuffs, and slowly walked toward Ewing and past him without a glance, through the door, down the corridor.

The outer door clanged shut behind him.

Through the glass, a moment later, Ewing saw him walking to the curb, opening the door of the car—Ewing's—and motioning the other man out. With his temper cooling, Ewing realized that they had no transportation; it would be a long walk down the hill to the center of town.

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He pressed his forehead against the glass and watched them go, gray in the twilight. A messy evening, he thought; nothing to be proud of. He was angry at himself for losing his temper, and for stuttering, and for hurting his father and just in general for being David Ewing. At the same time, he was angry at his father for being the kind of man he was, and at Wall for being himself, and at the whole misbegotten world that would not let a research man do his work in peace.

"That isn't it," he said aloud, in an agony. There was no use sinking into self-pity; it was not that simple. One thing Wall had said was true: *"You've got the responsibility."*

He had it. He had been carrying the full weight of it since Wednesday, when the Gismo was perfected. And the weight of it was this: You could not predict what would happen.

It often looked simple to people on the outside. If only Einstein . . . if only Meitner . . . if only Fermi . . . If only someone had said *no* at the right time. But it wasn't that simple.

Suppose there had never been a self-sustaining atomic reaction in the squash court down under the stadium at the University of Chicago? No crime of Hiroshima, and no fusion bomb to follow . . . and no atomic power for industry, and medicine, and transport—with the stars waiting someday, maybe . . . How could you measure the evil against the good?

But again and again there was one man who stood at the focus, and the time was right; and always, always he had to say *yes*.

Probably by now, he thought, Wall and his father were feeling the weight of that choice. From where they stood it was another problem, but not an easier one. (If only someone had painlessly killed Einstein . . . or Meitner . . . or Fermi . . .)

After a while, as much for something to do with his hands as for any other reason, he began to build another Gismo. The amateur carpentry was the hardest part of it; the circuit itself was almost childishly simple, when you knew how.

Such a little thing, to have so much power . . . like the two little pieces of plutonium.

And such a simple thing: like Archimedes' lever, that could move the world.

It occurred to Ewing that at least two things would need to be done, before he could trust his experimental model in untrained people's hands. After a while, as if idly, he began to work at the first one.

He cut a heavy hook out of a block of copper he took from the empty metallurgical lab next door. He made it three inches long, and shaped it at the top to take a bolt. He rounded the edges

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off as well as he could with a file and emery paper, and used the original Gismo to make a copy of it.

Then he bolted the two hooks securely, one to each end of the Gismo's crossbar, and wired them to the Schellhammers. Now the Gismo could be used to reproduce fairly heavy objects, up to the limit imposed by the size of the cross itself. Later on, he thought without enthusiasm, he could build a big one for really heavy work.

The second thing was harder and more urgent. The Schellhammer-Ewing effect, as he thought of it, followed surfaces by contact. If the thing you were duplicating should touch the Gismo anywhere but at the primary Schellhammer, then the Gismo itself would be duplicated too, and the table under it, and the floor under the table . . . It would have to stop somewhere, when the circuit was broken—if the process was not instantaneous indeed, but only extremely rapid—but even then, the damage would be almost inconceivable.

He thought about it for a while, sketched a circuit and crossed it out, and finally settled for a series of small, sensitive contacts built into the side and base of the cross, in such a way that a slight pressure on any one of them would open the circuit. It was tricky work, and Ewing was shaking with fatigue, at the end of his patience, by the time he was finished.

Then he set the two Gismos side by side on the bench and sat looking at them for a long time, while the night silence gathered. He felt like a man at the top of a ski jump—standing ready on the last inch, and the last minute of time, before the plunge. Here and now, he was still master of himself: he could still go ahead, or change his mind and draw back.

But in another inch, another minute, it would be out of his control: he and the world would be falling together, and nothing would be left but to try to keep his balance and come up standing somewhere at the bottom.

He thought wistfully of the almost-finished research paper in the drawer. There was no time for such formalities now. How did that tortured sentence in *Macbeth* go? *If it were done when 'tis done, then 'twere well it were done quickly* . . . .

Ewing suspended one Gismo—the new one—from the left-hand arm of the other, carefully propping and placing them so that the dangling Gismo hung over the edge of the bench, and touched nothing. There was irony in the ease with which he evaded his own safeguards, but he had done the best he could.

He pressed the switch, and removed a brand-new Gismo from the right-hand arm. Now there were three.

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Ewing had not thought much about formal religion for years, but it struck him suddenly, looking at the three crosses lined up in a row, that that shape was a hard one to get away from.

It was a functional shape, now as it had been two thousand years ago. But how many poems, how many songs, how many tears were going to be shed over this new cross?

Now and here, in this inch and this minute, it was all potential, none of it had happened yet. All of it lay quiet under his hand, waiting for his motion; and he trembled. It was too much power for one man; too much responsibility.

But if you rid yourself of it by handing it over to any committee —unless you hand-picked the committee to say *no*—then that was a *yes* decision in itself. Ewing had been through this already, lying awake for most of two nights; he was familiar with the way the logic funneled down to this point. And still he hesitated, vacillated, tried to find delays and excuses.

After a long time he went and rummaged in the storeroom until he found a pasteboard carton just the right size to hold two Gismos. He made two and packed them in to make sure, and then weighed the parcel on the postal scale in the Director's office. He looked up the rates, stamped the carton and pasted an address label on it. Then he looked at it.

"Come back when you get elected to speak for that many people," he had told Wall. But somebody had to speak for them. He tried to catch them all together in his mind's eye, the auto worker in Detroit, the widow with her three shares of A.T.&.T. in Memphis, the logger in Oregon, the office boy in New York, the general store clerk in Maine. How many would bless his name or curse it, tomorrow, next year, ten years from now? If they ever knew it . . .

"The Schellhammer effect," he said aloud. The effect existed, it was in hundreds of minds and in thousands of copies of technical journals: you couldn't wipe that out, even if you wanted to. Sooner or later somebody else would follow that lead to the end, as he had done.

So you couldn't suppress the Gismo. It was like all the rest of the dangerous inventions—it had its own terrible momentum, it would come out no matter how you tried to prevent it.

But when he thought of somebody else developing the Gismo, it was jealousy that went through him like a knife.

I want to do it, he told himself in the quiet night.

I want to do it. I'm going to do it, and to hell with them all.

He sat down at the tinny old upright typewriter in the Director's office, and doggedly pecked at the keys:

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THIS IS A GISMO.
IT IS A DUPLICATING DEVICE--IT WILL
DUPLICATE ANYTHING--EVEN ANOTHER GISMO.
TO OPERATE, SIMPLY WIRE A SAMPLE
OF WHATEVER YOU WISH TO COPY
TO THE LEFT HAND ARM OF THE GISMO, AS SHOWN.

(He drew a careful sketch in the margin.)

THEN PRESS THE SWITCH,
AND A COPY WILL APPEAR
ATTACHED TO THE RIGHT HAND ARM OF THE GISMO.
WARNING: DO NOT LET THE SAMPLE TOUCH ANYTHING ELSE
WHILE THE GISMO IS IN OPERATION.

He cut the paper down to size and stapled a copy of it to the base of each Gismo, and put them back in the carton. He sealed it with paper tape, and gismoed a copy of the whole thing, carton, address label, stamps and all.

The copy was backwards, of course. He hung it from the primary Schellhammer and turned out another that was right-side-to. And another.

He made fifty of them—fifty cartons, each packed with two labeled Gismos—and filled in their labels with fifty names and addresses taken from the Los Angeles telephone directories.

He loaded them into the back and trunk of his car, and took them down to the post office, and shoved them through the parcel drop.

Afterward, driving home through the silent streets, he was drunken with fatigue and he didn't feel anything at all.

Seven o'clock. Ewing could barely read the numerals on his watch; the blanket of smog overhead was so thick that only a ghost of light filtered through. The world was misty and silent. His wife, Fay, who had just come out of the house with an armload of linens, was a bluish-white blur drifting across the lawn.

Behind her, the cottage where they had lived for seven years, had an unfamiliar air in the pallid morning light. It was one of a row of small, pleasant California houses, white-painted, each with its well-watered lawn, trellis roses, and pansies in a formal bed. There was plenty of room behind the house for a garden, and in the summer Ewing grew tall corn, squash, tomatoes and scallions for the table. Inside, the house was cool and clean, with matte-surfaced green walls. It was a good house, trim and tight; they had grown to feel settled in it.

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"Girls up?" he asked.

Her blurred face nodded. "Elaine's dressing Kathy. I've got to give them some breakfast before we leave."

"All right, but hurry."

She looked at him as if she wanted to speak, then turned toward the car with her armload. "No room in there," Ewing said. "That'll have to go in the trailer."

"They'll get dirty—Oh, all right." She turned and put the linens over the tailgate of the two-wheel trailer, with one sweeping motion, and Ewing saw that she was trembling with anger.

"Fay," he said sorrowfully.

She didn't move for a moment, except to turn her head a little toward him. She was a pale blur in the morning light, but Ewing could see her expression, in his mind, as clearly as if he had her under a floodlamp. Fay was a pretty, tired-looking woman of thirty, bright-eyed and lively, with an unaccustomed tightness in the set of her generous mouth. Her face was strongly modeled over good bones, and Ewing knew she was lovelier than when he married her. She had a quick mind, but did not understand science, or want to. Ewing seldom discussed his work with her—they had other interests in common. He loved her very much. She was not ambitious, not possessive, not extravagant; she did not seem to have any of the things wrong with her that his friends took for granted in their wives.

Now she said, "I just don't understand."

Ewing took a deep and weary breath. He had been explaining it all night, in fragments—first to Fay, then to Jim Walsh and the other members of the physics group—and he felt as if he had been talking to a blank wall. They had all been interested, incredulous, excited about the Gismos, but only Jim had taken him seriously about leaving home. Maybe during the day, when they heard the first radio reports, the others would get the idea, and in any case he had done all he could. . . . And then he had had to wake up Fred Schlessinger, at five A.M., to borrow his trailer, and load all their household possessions that would go on it, with an argument over each piece that had to be left behind—

"I know it's hard," he said inadequately.

"If you could just *tell* me where you get this idea that your own father is going to murder you—" Her voice trembled.

"It isn't that," he said, trying to keep his impatience from showing. "If he hasn't done it by n-now, he won't. After a few hours from now, anyhow. There wouldn't be any point to it. I fixed that, Fay. But there's going to be thousands of other people going off their

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heads out there. Fay, the world is coming to an end."

"Don't exaggerate."

"I'm not exaggerating. In about two hours the mail will get into L. A., and then say about another hour for deliveries—"

"Please. Please. Now you say your father isn't going to murder you?"

"No," said Ewing, "because my father will take his licking. He might have considered it his special duty to . . . put me out of the way—all right, you think that's fantastic, but you just think you know my father. But what I'm telling you is, he won't, if it won't have the effect of suppressing the Gismo. And it won't."

"But then who are you afraid of now?"

"I'm trying to protect you and the kids!" said Ewing, losing his temper. "I've tried to make you understand a million different ways, but if you can't, then just obey me. Until we can get a breathing spell—"

"All right, master," she said in a breathless voice, and turned to go back into the house.

Ewing started the car and backed it up to the trailer. Almost an hour later, when they finally pulled out of the driveway, the tension between him and Fay still had not eased.

Was it just fear, after all? Could he have been deceiving himself? Had he turned the whole civilized world upside down, just because he was afraid for his own skin?

II

It was the first day of the Gismo.

Jack Noyes sat at his desk and stared half-blindly at the sales chart, apologetically small, that was framed on his wall opposite the big photomural of the company's Sonora plant. The black line on the chart was a soaring curve, as beautiful in its way as a gull's flight.

From downtown Los Angeles, five floors below, came a confused, jarring noise—a wail and shriek of voices, blare of auto horns, distant howl of sirens.

Noyes's blunt fingers touched the silky aluminum surface of his water carafe, the sleek marble of his desk set, the china scotty, the Soundscriber—symbols of his rise.

What did it all mean now—curve on the chart, Soundscriber, desk, office—nation?

He was sitting very quietly, clinging to the feeling that he was still himself, still whole. He was Jack Noyes, 32, rising young executive, protégé of the Old Man himself, Nathan M. MacDonald. He knew himself to be more than commonly capable, industrious, ambitious. He had been headed for the top.

The top of what, now?

His fingers strayed to the portable television on his desk, turned

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the dial. After a moment the picture tube bloomed to life; the hoarse voice was saying, "—all down Sunset Boulevard, folks, from Olvera Street west. And here's a flash: Police Chief Edward Corsi has issued a call for special volunteer policemen to handle the crowds. It's my hunch he won't get 'em. The big question today is, Have you got a Gismo? And believe me, nothing else matters. This station will stay on the air to keep you informed as long as possible, but no thanks to its poltroon of a general manager, J. W. Kidder, or its revolting program director, Douglas M. Dow, who took off for the hills as soon as they got theirs. For my own part, I say balls to them both. And *balls* to the Pacific Broadcasting Company and all its little subsidiaries! Balls to Mayor Needham! Balls to the city of Los Angeles, seven suburbs in search of a soul! And *balls* to—"

Wincing, Noyes turned the set off.

He listened. Not a whir of typewriter or rustle of paper came from the typists' pen just outside his office. Somewhere a door slammed—down at the other end of the corridor, in Accounting, he thought. There was a sudden crash of glass.

Noyes got up and opened the door. Bill Mooney was passing, red-faced, with an empty pint bottle in one fist.

Mooney stopped. His eyes were yellowish and glittering; there was a fierce, meaningless smile on his face. Noyes moved back a step.

"Eyah!" Mooney shouted. "I'm a ring-tail baboon! I'm a mother-humper! Wah!" He dashed the bottle to the floor at Noyes's feet. Spinning shards whispered to rest in the middle of the typists' pen.

Muscles tensed, ready to fight or run, Noyes discovered that Mooney wasn't even looking at him. Mooney lurched off across the pen, cannoned into the water cooler and wrestled furiously with it. It toppled, barely missing him, and fell with a thunderous boom.

Mooney stood slack-jawed over it for a moment, arms hanging, then turned and went whirling out. The doors clapped to behind him. Noyes saw him through the pebbled glass, a dark underwater shape, lifting something and poising it.

One door burst into clattering slabs. A wrought-bronze ash stand fell through and leaned in the opening. And Mooney was gone.

After a moment Noyes went down the corridor, glass crunching under his feet. In the short dead-end corridor to the right, doors were standing open. Sales was empty except for the snowfall of spilled papers on the floor.

At the end of the corridor was the red-paneled door of the penthouse elevator.

Above, the familiar anteroom

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was just the same: muffled, womb-like, in sumptuous dark green. Behind the desk, Mrs. Delafield was sobbing, with her coifed gray head on the blotter.

She didn't look up when he paused beside her. Noyes moved on, and opened the inner door.

MacDonald was there, looming behind the great bare desk. He glanced up under his brows as Noyes came in, but said nothing. He was taking things out of his desk drawers, dropping some of them into an open briefcase, throwing others on the carpet.

"You, too?" said Noyes.

MacDonald showed his yellow-brown stumps of teeth around his cigar, in what might have been a smile, and kept on opening drawers. At 64, he had a puffy, pop-eyed face that looked irascible and kindly. The impression held for most people, until they noticed his eyes, which were oyster-gray, or until he opened his mouth, which was as merciless as a shark's.

Noyes said, "Mrs. Delafield is crying, out there."

MacDonald nodded soberly, and took the wet cigar-end out of his mouth. "I told her she couldn't come with me," he said. He picked up a photograph framed in red leather, glanced at it, and tossed it aside. He took two pillboxes out of a drawer, rattled them, and put them into his vest pockets.

Noyes felt green and anxious again, the way he had been at his first interview with MacDonald. The world seemed to revolve around the Old Man when he was present; he wore his bulk and his age with such assurance that others felt absurd to be younger and thinner.

"Then you're licked," said Noyes hoarsely. "Like everybody else—you're through. I didn't think you'd admit it."

MacDonald took the cigar out of his mouth and turned his full attention on Noyes. "Through?" he said contemptuously. "You are, maybe. I never thought you had much spine."

Noyes' fists clenched. "What did you promote me for, then?"

"You were the best I had. It isn't saying much. Your whole generation went soft, right after the war. You never had to fight. You don't know how."

MacDonald said it all in the same even, husky tone, with an air of indifference. He put the cigar back in his mouth and turned away. He took up an extra pair of glasses, in its leatherette case, wrapped it in a handkerchief and put it away carefully in the briefcase.

Noyes noticed for the first time, but without surprise, that the object distending one corner of the briefcase was the cross-shaped upper part of a Gismo.

He felt his body softening with despair. Somehow, irrationally, he had thought of the Old Man as a

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last refuge, a rock to stand on.

"Where did you get it?" he asked.

MacDonald grunted. "Sent Wilson down after it. You'll have to get your own, if you want one. I sent him down again, and he didn't come back."

"I'll get one," said Noyes automatically. He would, he supposed; and then what?

"Nate," he said.

The giant looked up.

"Don't you care?" Noyes burst out. "Can you watch the whole thing go to smash, and just—sit in a corner somewhere and be a hermit, with a Gismo in your lap?"

MacDonald put both fists on the desk-top and leaned on them. "Is that what you think?" he said curiously. "Sit down," he added after a moment. He went to the sideboard, poured whisky and a little soda, and came back with the glass. "There's some dutch courage," he said drily. "Drink it."

Noyes drank, watching him.

"When I was your age," said MacDonald, hooking his thumbs in his vest pockets, "I had seven thousand dollars. I had a chance to go into business with a man named Theodore M. Pollack, but I needed twenty thousand. I borrowed five, and blackmailed the rest from my father-in-law, and went into business. That was my first company, Don Paul Products. I bought out Pollack in 1932, at the height of the Depression. I paid him fair value for his half, and he died broke. I paid my father-in-law back with six per cent interest, and he blew his brains out in 1934. Now you tell me everything's changed because of one invention. No, sir. There'll still be business—still be trade—and there'll still be people who own everything and people who own nothing. You might be the type that'll end up owning nothing, because you're too dainty to take it. I don't know. I'll give you this one tip. Pretty soon, when things settle down, there's going to be some brisk trading in things that can't be duplicated." He zipped up the briefcase as far as it would go, and settled it under his arm.

At the door, he turned and barked, "Think it over!" Then he was gone.

The sporting-goods department had been looted thoroughly, but Noyes found a long-barreled .32 target pistol and cartridges to fit. He had never held a firearm in his hands before. Experimentally, he stood sidewise to a big archery target five yards away, held his arm out straight as he had seen it done, sighted and squeezed the trigger.

The gun made an incredible noise and leaped in his hand. Deafened, a shrill ringing in his ears, Noyes went over to look at the bull's-eye. There was no bullet hole there, nor elsewhere on the target. He could not find it at all.

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The disappointment was stunning. He had expected to miss, but not so fantastically badly! There must have been some mistake.

He tried it again at ten feet, with exactly the same result.

For a long moment he sagged hopelessly, remembering the Old Man's words: *"Your whole generation went soft, right after the war. . . ."* Suppose it were true? He was untried; he had never had to meet this kind of challenge before.

He didn't even know how to shoot anybody.

He put the gun in his pocket deliberately. If he couldn't shoot it straight, then at least he could point it. That would have to be enough.

His skin was burning feverishly as he went down the stalled escalator and headed for the ground-floor drug department. Something else the Old Man had said was repeating itself behind his ears in an endless low grumble: ". . . *things that can't be duplicated.*"

If you had a Gismo, he thought, and one of something, it would cost you nothing to make two of that thing, or ten, or a hundred. But first you had to get the one. . . . So a lot of things that had been valuable were going to be worthless as air, because every damned fool and his brother would be duplicating them . . . but not everything. A one-of-a-kind—a *Mona Lisa,* a Shakespeare folio, even a Picasso or a Ben Shahn—anything desirable and unique was going to have a greater value than ever before, just because nothing else had any value.

And every human being born, he told himself, is unique.

In the back room of the drug shop he rummaged until he found some empty gelatine capsules. He filled a little box-full of them patiently with baking soda; and that was the last thing he needed. He was ready.

The littered streets were almost deserted now; the mobs had all drifted away westward: he could hear the sirens wailing faintly on the wind, and the hushed surf-roar of the crowd.

In the parking lot at Main and Sixth, he found a man in a greasy cap squatting on the ground, stuffing himself with chocolates from a big box.

The man looked up with slack-jawed surprise when Noyes spoke to him. "W'a?"

"I said, stand up," Noyes said harshly, and took out the pistol.

The man got incredulously to his feet. Noyes looked him over; he was big enough, but evidently not very bright. Some of that bulge was fat, but he could be trimmed down.

"Catch," said Noyes, and tossed him a capsule.

"What's this?"

"When I want you to know, I'll tell you. Just swallow it, or I'll have

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to kill you." He discovered, to his own vast surprise, that he meant it.

The man's dirty-brown face turned gray. He said, "But—"

"I mean *now!*"

The man swallowed it convulsively.

"That was poison," Noyes said conversationally. "It will kill you, as sure as you're standing there, unless you take the antidote for it every day from now on. You understand? You can't get the antidote anywhere else. I'll give it to you once a day—but you'll have to earn it."

It occurred to him that for appearances' sake he ought to put the gun away. He did so, with his heart leaping wildly, thinking: I can always shoot through the pocket if I have to.

The man's thick hands were curling. "What did you do that to me for?" he demanded.

"Will you take orders from me?"

The question seemed to slow him down. "Looks like I have to—but—"

"That's the reason," Noyes told him, beginning to relax.

The Times and Mirror offices were deserted, but Noyes looked through their personnel files, and by great luck found Miss Annabell Pearson, gossip columnist, at home in her Beverly Hills apartment. She was staring at them over a telephone handset, jiggling the hook and shrieking, "Police!"

Noyes's man, whose name was Leonard, had to pry the telephone out of her fingers.

Hysterical as she was, Miss Pearson had what Noyes wanted: she knew the address and whereabouts of every moving-picture and TV celebrity in Los Angeles County.

Cruising northward in the station wagon Noyes had selected for its newness and its puncture-proof tires, they saw a man beating a little girl—holding her by the pigtail with one hand, and slapping her open-palmed with the other.

They stopped, and Noyes and Leonard recruited the man; all the fight went out of him when Noyes told him what he had swallowed. The little girl ran like a rabbit as soon as she was free; Noyes let her go.

They found the frightened young movie star, Hollywood's reigning sex queen, barricaded in her Altadena cottage. Leonard and the new man, Al, broke a window and came out with her, a few minutes later, kicking and struggling between them. Noyes had her efficiently trussed, gagged, and deposited—but carefully, because she was a valuable property—in the back of the station wagon.

Miss Pearson was sitting tied to the seat behind him, ashen-faced and trembling. He turned to her. "And what's the next address?" he asked.

By nightfall, he was thinking contentedly, he would have forty or fifty of the best, and a big house

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somewhere in the hills, and a full staff of servants . . . and guns, certainly he must get more guns. . . .

What did it matter if the future was still cloudy? He was rolling, moving with the times. He was in business.

III

It was the second day of the Gismo.

Ewing opened the back screen door and stepped out into the yard. It was a still, cloudless morning; the smog was all down in the valley. The tall dry grass was uncomfortable to walk in, and he moved automatically down the shallow slope to stand under the pepper tree. In the cool cavern behind the hanging curtain of branches, the ground was bare except for the carpet of red leaves and the hard little berries. The kids had been building a hut in here with old lumber from the fence, and their toys were scattered around. Ewing's ear registered the sudden outburst of shrill voices inside the house, and he frowned unhappily. That was not so good: you could hear them half a mile away, and they were all over the mountain in the daytime. But you couldn't keep children locked up like criminals.

Anyhow, they had found a good place. The cottage stood on its own half-acre terrace more than halfway up the mountainside. Above it there was only the scrubby slope of the mountain itself, bone-dry and littered with boulders, and a row of desiccated palm trees along the irrigation canal. The one neighboring house, between the cottage and the hill road, was empty and fire-gutted. Below the house there was another terrace, where evidently previous tenants had had a kitchen garden; then the land sloped abruptly down and became an orchard of tiny orange trees. Ewing had seen the owner's name on a mailbox, down at the bottom of the mountain: Lo Vecchio, something like that. What was going to happen to him and his orchard, now?

Down below, the valley lay spread out, rolling down and receding into an improbable blueness. Ewing could see the road, diminishing to a tiny yellowish thread, and the cross-hatched patterns of tilled fields. The horizon curved around him on three sides. Eucalyptus trees masked the highways; except for an occasional airplane, or a car going or coming in the residential area just below, the world around him might have been deserted.

The rattle of a laboring engine came echoing up in the clear air.

Ewing started, and peered fruitlessly off to his right, where trees screened the road. That sounded like somebody coming up the hill.

Trouble. It might be somebody from the Adventist colony down

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below, paying a neighborly call, but from what Ewing had seen, they all drove late-model cars. This sounded like a wreck. With his heart pumping in his throat, Ewing ran into the house, past a startled Fay and two round girl-faces at the breakfast table, and got the shotgun out of the closet. He made a second grab for the box of shells; two more jumps took him to the front porch. He was in time to see the car pull up on the road above the house.

It was a battered, dusty Lincoln coupe with its trunk bulging open. All the chrome trim was missing from the body and fenders, and the denuded strips were measled with rust. A fine spume of steam rose from the radiator.

"Dave boy!" shouted the driver, popping up on the far side of the car like a marionette. He was a dusty gray man in a faded jacket and sweater; Ewing lowered the gun and stared at him. That cracked, cheerful voice—

"Platt!" he said, in mingled relief and exasperation.

"None other! The very same! In the flesh!" Platt came stork-legged down the driveway, moving with a jerky, nervous energy, elbows pumping, his long face split in a yellow grin. He grabbed Ewing's hand and shook it hard; his water-gray eyes were bright and sparkling. "Gotcha! You can't hide from me, boy! Ends of the earth! Well, hell, it's good to see you, Dave—hello, Fay, hello kids—but for God's sake"—Ewing turned to see that his family was clustered in the doorway; he turned back as Platt's stream of talk went on uninterrupted—"ask a man in and give him a drink of water if you haven't got anything better. I'm so parched I'm spitting sand. What are you up here, eagles? Hell, is this Elaine? My God, you're big! Pretty as your old lady, too. And who's this?"

Kathy, looking suspicious, retired behind her mother's skirts. Elaine, who was twelve, was blushing like a debutante. Somehow they were all moving into the living room, and Platt threw himself into the only upholstered chair with a shout of comfort. He was leaning forward the next instant, still talking, fumbling a pack of cigarettes out of his jacket, striking a shaky light, dropping the match, pulling Elaine into a one-armed embrace and winking at Kathy.

Platt was a man of galloping enthusiasm; a good experimental physicist, but a theorist whom nobody took seriously. He had a new theory every year, and believed in every one with a frantic, whole-souled earnestness. His greatest love was rocketry, but he had never succeeded in getting a clearance to work on classified projects. Platt's frustration was acute, but only seemed to wind his spring tighter. He changed jobs frequent-

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ly, and popped in and out of Ewing's life: the last time they had met was in 1957.

Elaine, who was still blushing, drew away and went toward the kitchen. "I'll get the water for you, Mr. Platt."

"Call me Leroy. And not too much water, honey."

"There isn't any liquor in the house," Fay said. "We just moved in yesterday, but I can get some coffee . . ."

"No, that's OK, I've got a bottle in the car—the bottomless bottle, thanks to your boy here—I'll bring it in later and we'll have a ball, but listen, Dave"—the cigarette spilled ash down his frayed sweater—"I want to tell you, you're the biggest bleeding genius of them all. My chapeau is off to you, boy, I mean it! *Jesus,* I wish I'd invented that! But you did it, son—you're the greatest. I mean it. Well"—he took the brimming glass of water from Elaine and raised it—"here's to you, Dave Ewing, and long may you Gismo!" He sipped and made a mock-wry face, then gulped the water down.

Ewing said, "What makes you think I—"

"Who was working with Schellhammers?" Platt cried. "You think I didn't see your John Henry all over that thing? Going to tell me you didn't do it?"

"No. but—"

"Sure, you did! The second I saw that, I could tell. I said to myself, I got to find old Dave, and I'll *do* it, too, if I have to track 'm down like a bloodhound!"

Fay put in, "Leroy, how did you find us?"

"I'll tell you, honey. See, Dave and yours truly were old army buddies, and back at Fort Benning he always used to tell me how he wanted to go live in the mountains some day—wanted to be a goddam eagle and sneer down at all the flatland foreigners. So I figured, where would Dave go if he wanted to get out of sight in a hurry? Not down to L. A., because there's going to be hell popping down there. Not up the coast, because that'd take too long and he might get stuck anywhere along the way. I figured, he'd head out on route ninety-one and stop the first time he came to a high place. So I followed my hunch, and when I saw this little pimple with a house on it, I came on up. See?"

The Ewings looked at each other in dismay. Fay's hand was on the little portable radio; she must have switched it on, because a power hum came out of the speaker. But there were no voices: the last of the local stations had gone off the air yesterday evening. She turned it off, still looking stricken.

"Well, hell, you don't have to *stay* here, do you?" Platt demanded. "Not that anybody else would find you this easy, but listen, old buddy, you too, Fay, what are you

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going to do with yourselves, now you don't have to work for a living?"

Ewing cleared his throat. "We haven't really had time to talk about it. I'd like to build a lab somewhere, when things settle down. . . ."

"Sure you would. You will, too, boy. Hell, the sky's the limit, and that brings me to the moral of my tale. Listen, thanks to you, we can all do what we want now—and Dave, listen, you know what I want to do?"

Ewing said the first fantastic thing that came into his head. "Fly to the moon, I guess."

"Right. Good boy—smart as a razor, no flies on *you*."

"Oh, *no*," said Ewing, clutching his head.

"Sure! Dave, listen, come on with me, bring the family—I've got the place picked out, and I know ten, twenty other people that'll come in with us, but you're the boy I wanted to see first. It's big, boy, it's the biggest thing in the world!"

"You really want to build a spaceship?"

"*Going* to build one, boy. Up in the Santa Rosas—the Kennelly labs, they're made to order. All the room you want, and heavy equipment—two months to get organized, and then watch us go."

"Why not White Sands?"

Platt shook his head impatiently. "I don't want it, Davey. One thing, every space-happy nut in the country will be there by now—you'll have to elbow 'em out of the way to spit. Then, what have they got that we need? Hardware, yes, missile frames, yes, but most of it is the wrong scale. We're going to start fresh, Davey, and do it right. You can't make an interplanetary vehicle out of a Viking, boy—might as well put rockets on an outhouse. Think about this, now. Really see it." He hitched closer, spreading his ungainly arms. "Build your ship—any size. Make it as big as an apartment house if you want—and all payload, Davey! Put everything in. Bedrooms, bowling alleys, kitchens—wup, no kitchens; don't need 'em. But libraries, movie theaters, laboratories—"

Ewing started. "Leroy, have you been drinking liquor copied by the Gismo? You said something before—"

"Sure," said Platt impatiently. "Eating the food, too. Why not? Just put it through twice, make sure you don't get any reversed peptide chains. Now listen, boy, pay attention—you build all that, whatever you want, get the picture? Now: put your rocket motors underneath. All you want. With the Gismo, you can have ten or a million. Now what about fuel—all those big tanks that used to kill us dead before we got off the ground? Davey, two little tanks, hydrazine and oxygen, and two

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Gismos. We *make* our fuel as we need it. Forget about your goddamn mass-energy ratios! I can jack up the goddamn Mormon Temple and take it to the moon! The *moon, hell!"*

He took a breath. "Dave, think about it! We can go any goddamn where in the ferkin' *universe!* This time next year, we'll be on Mars. Mars." He stood up, arms out, and became a spacesuited Martian explorer, staring keenly into the distance. "What's that I see? Strange pyramids? Little men with six noses? We'll find out, but let's make it quick, because we got a date on Venus. But we'll leave behind a bunch of big Gismos as an atmosphere plant—fifty years, a hundred years, there'll be enough air on Mars to breathe without these helmets. Then *Venus*—same thing there. If there's no oxygen, we'll *make* it. Davey, a lousy hundred years from now, mankind'll own the universe. I'm telling you! We can have Mars, *and* Venus, *and* the Jovian system, just for the asking! Then what about the stars? Listen, Davey, *why not?* In that ship we can live indefinitely—we can have kids there, and they'll keep going when we kick off. Do you see it now? Doesn't it send you?"

He paused and glared incredulously at Ewing. "No?"

"No. Now look, Leroy, just to take one point—this atmosphere scheme of yours. You're going to be adding mass—billions of tons of it. It isn't like releasing free oxygen chemically, from oxides in the soil or something like that—you're going to perturb the orbits of the planets."

"Not to bother about," said Platt energetically. "Look, look—say the mass of a small planet like Mars . . ." Still talking, he hauled out a small celluloid slide rule and flipping the cursor back and forth.

"Wait a minute," Ewing said, "you're going off half-cocked again." He produced his own slide rule from his back pocket, and they bent closer to each other, both trying to talk at once.

When she saw this, Fay got up and went into the kitchen, taking her resigned children with her.

Half an hour later, when she came back with coffee and sandwiches, Platt was just getting to his feet in an ecstasy of despair at human stupidity. "Well, hell," he said. "Well, hell. Well, *hell,* boy, I'll get the bottle and we'll have a snort to celebrate, anyway. Maybe that'll loosen you up," he added in a stage aside. The screen door banged behind him.

Ewing grinned ruefully and put his arm around his wife as she sat down beside him. "Better get the spare room ready," he said.

"Dave, no, it's just that hot little room with the water heater in it. And we haven't even got a mattress for him."

"He'll sleep on the floor—he'll

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insist on it," Ewing said. He shook his head, feeling a sentimental warmth for Platt—so entirely himself, so unchanged after all these years.

"Good old Leroy!" he said. "Venus!"

IV

That afternoon, in Denver, Forrest Dean Tucker went up the attic stairs three at a time, clutching the cross-shaped device to his narrow chest. He was tall and meager, lank of leg and hollow of cheek. And, at the moment, burning of eye. He had been at the airport where he worked one afternoon a week as Public Relations Officer of the Denver Civil Air Patrol squadron; he had been the third one to reach the California Cub when it taxied to a stop. The middle-aged lady in the leather jacket had stood up with her arms full of wooden crosses, beaming through steel-framed spectacles, calling joyously, "I bring you all *freedom!*" And the first Gismo she tossed had fallen into his bony arms.

To Tucker, from the first, it had meant only one thing. He knew the mania that was spreading from the airport, just too late to catch his speeding Ford; he knew there was hell to pay, but it scarcely touched him.

Dean Tucker, 24 and unmarried, a theater-equipment salesman by trade, was a science fiction fan. The Gismo to him was not merely meat and drink, housing and freedom, weapons, clothing and such picayune matters. The Gismo meant The Perfect Fanzine.

Tucker put the Gismo down reverently on his desk behind the ancient Varityper. Just to make sure, he read through the instructions stapled to its base; then he picked up the top sheet of a pile of typescript, and hung it from the left arm of the cross. He had to puncture the paper to do it, but already he could see a way around that; this was just a test. He pressed the switch, on and off. A duplicate sheet, newborn, swayed from the right-hand side.

He detached it. It was, as he had expected, backwards. What about a fanzine to be called *SDRAWKCAB*, printed backwards? The fan who got it would of course put it on his own Gismo and make a right-side-to copy. ("And remember, *SDRAWKCAB* spelled backwards is *BACKWARDS!*") . . . No; a cute enough idea, but only for a one-shot. This was for keeps: this was to nail down the one perfect, unapproachable fanzine for all time!

Tucker rolled a sheet of paper into the Varityper and attacked the keys. "THE PERFECT FANZINE," he wrote.

Reader, I say to you, what is a fanzine?

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Is it just a magazine published by a fan?
Is it just a rolled-up collection of smeary mimeographed pages, stamped-on by mailmen, all dripping with some jerk's fuggheaded thots?
No, no.
I say to you, a fanzine is much more than this, oh much more.

Too much more; Tucker's thoughts were leaping ahead too fast for the Varityper to keep up. He plucked the page out, laid it aside, and put a fresh sheet in. He wrote:

NOTES
Paper (the best--glossy, heavy weight)
Print--carbon ribbon in the Varityper (NO TYPOS)
Binding--? ? ?
Art--multi-color originals! No time to get anybody to draw--better do some pasteups (get art books & so on from LIBRARY, etc.)
Text--got to have an article by Silverberg and one by Bob Wilson and one by me and one by Robert Bloch and let's see--

Tucker's eyes glazed. He could almost see the heavy, glossy magazine with its pristine type columns, its tipped-in prints and photographs . . . and every copy would be exactly, to the last atom, like the original! Of course, it would be hard on short notice to get material worthy of the format. unless he wrote it all himself. . . . But these details could wait. Fired by enthusiasm, Tucker leaped out of his chair, thundered down the attic stairs again and piled into his Ford. Three-quarters of an hour later he was back, burdened with books and magazines, a quire of heavy enameled paper, carbon ribbon and various sundries. (Gold and silver paint for handlettering titles; a box of doll's eyes, for gluing on instead of the word "I"; plastic bindings and a punch that would cut the holes for them.) He charged up the stairs again, puffing.

As a preliminary step, he picked up the battered old mimeograph in his arms and threw it ceremoniously out the window into the back yard. He looked down at it with satisfaction. No more ink drips! No more offset sheets! No more paper snarled in the gears! No more ink pads, stencils, counters that wouldn't count, gooky correction fluid, styli, letter guides! The day of the Perfect Fanzine was at hand!

Later on, he could erect a suitable gravestone over the wreckage.

But, horrors! He still had to get word to his contributors, or there wouldn't be any copy. Was the telephone still working? He

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snatched it up, dialed O. A busy signal buzzed in his ear. So: the lines were jammed naturally. What about the U. S. Mail? If he wrote letters, airmail special delivery—

Suppose the mails stopped? It might have happened already, or it might happen any minute.

What was left? Telegraphy, telepathy, teleportation?

Western Union might fail him, too. But wait! A satisfied smirk contorted Forrest Dean Tucker's face as he grabbed a piece of scratch paper and scribbled:

Bob Wilson—Bloomington, Ill.
J. Verne is dead but science fiction lives on. Must have immediate Ponk article any length for first issue of fanzine to end all fanzines. Do not send flowers.

He counted words, stopped when he got to fifteen. Hang the cost! What was money, anyhow? The point was, any telegram about a death got priority handling; if any telegrams were still getting through at all, his would.

Enough! The Wilson telegram would serve as a model for all the others. Pausing only to aim a vicious kick at his mimeoscope, Tucker dashed down the stairs again.

He sent twenty telegrams, hanging the expense, and spent the rest of the day tidying up the fan attic, cleaning the Varityper and installing the new carbon ribbon, and drawing up tentative dummies, logotypes and cover designs for the Perfect Fanzine. Some of them were dillies, too.

But for the next several weeks all the Big Name Fans on his list were busy putting out the Perfect Fanzine on *their* Gismos; and all Tucker ever got was one incoherent hand-lettered manuscript from a new fan in Hill City, Kansas.

V

It was the third day of the Gismo.

Shortly before noon the house was in full sunlight. The sky was clear; the heat poured down in a breathless torrent, and the dry earth bounced it back. The air over the mountainside shimmered with heat, and the palms were dusty and brittle. Ewing picked up a clod of dirt in his hand; it crumbled into brown powder. "Hot," said Leroy Platt, fanning himself with a shapeless fedora. "sure is hot." The sunlight made his pale eyes look naked and mad, surprised like oysters in the white shell of his face. He put the hat back on.

Ewing enjoyed the heat. The sun beat down on his head and shoulders as if it wanted to cook him; but his limbs moved freely, well-oiled, and tiny drops of sweat, like a golden mist, sprang out all

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over his arms and body. He liked his sharp-edged shadow moving crisply underfoot in the strong light. He liked thinking about the cool shade inside the house, after the heat. "We're almost there," he said, scrambling up.

From the top of the little mountain they could look down on the residential area, the Adventist college and food factory, all laid out like a tabletop village. The streets were neatly drawn, the trees bright green, the housetops blue or red.

They turned. Down the opposite slope, it was another world: naked, burned-out mountain valleys, rolling away one behind another, looking as if a drop of water would hiss into steam anywhere it touched them. Straight to the horizon, there was no sign of man.

"Now there," said Platt breathlessly. "That's it. There you have it. Thousands of square miles, Dave, mostly up and down, but right next to our own back yards, and most of the time we forget it's here. Huh. You walk down a street with houses on both sides, and you say to yourself, look how we've civilized this continent in a lousy three hundred years. But, hell! We haven't scratched the surface! Dave, just think—if you can make your own water supply, wherever you want it, what's to keep you from going out there, and planting grass all over those goddamn mountains, if you feel like it? Why, hell, there's room enough to make every man a king!"

"Uh-huh," said Ewing abstractedly.

"Of course, people being the sons of bitches they are—What's the matter?"

Ewing was staring off into the northern sky, shading his eyes. "I hear it, but I don't see it," he said.

"What?" Platt listened and stared. "A chopper," he said. A faint, distant rumble blurred over his words.

"What?" said Ewing. "Shut up a minute, Leroy."

The rumbling came rolling distantly down out of the sky. It was a voice speaking, but they could not make out the words, only a vast blurred echo.

"There it is," said Ewing after a moment. The tiny speck was hanging over the valley floor to northward, slowly drifting closer. The rumbling words grew almost clear enough to be understood.

"Army copter," said Platt. He fell silent, and they both listened.

"Rrrr rrr rmrm," said the brassy voice in the sky. It paused and began again: *"Rrr attention plrrse. (rse.) Your attention please. (ease.) This area has been placed under martial law. (law.) All citizens are ordered to remain in their homes, (omes) and refrain from causing disturbances. (urbances.) Stay in your homes. (in your homes.) Normal services will be restored shortly. (ored shortly.)*

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Law-breakers will be severely punished. (verely punished.)" The voice grew to an ear-offending shout as the copter drifted leisurely closer. Now it was almost overhead, and Ewing could see the blades whirling shiny in the sunlight, and the transparent bubble with two dark figures in it. The drab-painted machine turned as it drifted, the long curved body like an insect's abdomen. The huge voice stopped and began again. "YOUR ATTENTION PLEASE. (EASE.) YOUR ATTENTION PLEASE. (EASE.)—"

Ewing had his hands over his ears. Platt's jaws were working. He took his hands away for a moment and said, "What?"

Platt shouted, "A load of crap! Martial law!" He said something else, about "desertions," but Ewing couldn't make it out. The copter overhead, still shouting, drifted down toward the highway. Following it with his eyes, Ewing saw something strange. He saw what looked like a line of cars and trucks, spaced almost bumper to bumper, climbing the mountain road. There was a wrecker, followed by a red convertible, two moving vans with dusty red sides, three panel trucks, two late-model sedans with glossy aluminum trailers, and a small gasoline tank truck.

He grabbed Platt by the arm, pointed. Then he was buck-jumping down the mountainside, with his heart in his mouth, catching a glimpse of the lead car turning in at the top of the road.

A round man stood up in the back seat of the convertible and aimed a gun at him. "Hold it!"

Ewing skidded, arms flailing. The irrigation canal was coming up like a fast elevator; he could see the hard white cement border, and the half-transparent minnows darting in the shadow. He couldn't stop himself, he was going in . . . He plunged back with a violent effort, and the mountain hit him hard. His ears rang. Dust rose around him. He sneezed and struggled to his feet.

The man in the convertible looked up at him without speaking. The gun was a double-barreled shotgun, sawed off short. He held it with the stock tucked under his arm. His dusty blue polo shirt was dark with sweat; his face and his heavy arms were burnt brick-color, but he wore only a shabby polo cap against the sun. A deer rifle was propped against the seat near his hand, and the butts of two revolvers stuck out of his waistband. His round face, eyes slitted against the glare, was placid and expressionless. He was chewing the ragged cold stump of a cigar.

"Stay right where ya are," he said finally. Ewing glanced to his left, and saw Platt standing there, hatless, with a bloody nose. "What was you guys running for?" the

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round man asked them blandly.

Ewing said nothing. The young Negro in the front seat of the convertible was staring straight ahead, not looking up or appearing to listen. He was manacled to the wheel. So were the drivers of the wrecker and the first moving van. All three of them had the same vacant, faintly surprised expression.

The round man blinked and shifted his cigar. He nodded at the battered Lincoln up ahead. "That your heap?"

"It's mine," said Platt, starting forward. "I'll get it out—"

The shotgun came up sharply, and Platt stopped. "Just stand still," the round man said. "OK, Percy."

The young Negro punched the drive button with his free hand, and the convertible inched ahead. Ahead of it, the links of a heavy chain rattled on the ground, while behind it a similar chain tightened with a clank and groan. After a moment, the other vehicles began to move. There were crashings and roaring engines as the motion transmitted itself down the line.

The wrecker crawled ahead. Its broad wooden bumper butted up against the rear of the Lincoln, and began to shove. The Lincoln budged, trembled and bucked nearer the side of the road. Its right front wheel ran off the edge. The wrecker pushed, grinding in low gear. The Lincoln tipped downward, toward the narrow canyon between the road and the house. It hung, swayed reluctantly, and then went over with a grand smash against the side of the house. There was a startled shriek from inside. A tile fell off the roof and slid down the exposed side of the Lincoln. The dust cloud rose. The wheels spun quietly to a halt.

The cavalcade stopped, a little at a time. The round man turned his full attention back to Ewing and Platt. He did it deliberately, as if massive gears were turning somewhere inside him. He blinked, shifted the cigar butt in his mouth, and spoke. "Why did ya park ya car inna road?"

Ewing thought he had seen a face at the bedroom window. He said unwillingly, "Nobody uses this road. It doesn't go anywhere, except a ranch around the other side. They don't use it any more, there's a barrier."

The round man digested this in silence. He shifted the cigar again. "Yaa?" He chewed the cigar with an expression of distaste, removed it, spat, and put it back. "How big of a place would ya say that is?"

"The ranch? I have no idea," Ewing said stiffly. Platt was looking mournfully down at the way his car was wedged in between the slope and the house.

The round man stared at Ewing. "Ya seen it?"

"From a distance—I mean the house. I told you, I don't know

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anything about the ranch itself."

The round man thought about this. "Just one house?"

"That's all I saw."

After another pause, the round man nodded. He balanced the shotgun on his knee, took a soiled piece of paper and a stub of pencil out of his shirt pocket, and carefully drew a heavy line across the paper. "Okay," he said. "The heck with it." He put the paper and pencil away with the same deliberation, picked up the shotgun again, and stared at Ewing. "You live here?"

Ewing nodded.

"Who else?"

"Nobody else," said Ewing tightly. "Just my friend and me."

"Don't tell me no fairy tales. Whatja do for a living?"

Ewing said, biting the words, "I'm an experimental physicist."

Instead of grunting and looking baffled, as Ewing had expected, the round man merely nodded. "Him too?"

"Yes."

The round man breathed quietly through his nose for a while, staring at the ground somewhere near Ewing's feet, shifting the cigar from time to time. Eventually he said, "Come on down here—climb the chain and cross over." When they had done so, he got out of the car and stood beside them in the road. "March." They started down the driveway. "Your wife know how to shoot a gun?" he asked Ewing as they went.

"No," said Ewing heavily. It was the truth.

They walked in silence down to the shaded front porch and opened the door. In the living room, Fay and the children were waiting.

"My name is Krasnow," said the round man. "Herb Krasnow. I was a shipfitter in San Diego for seven years. I was in the Marines, too, before that, so don't make the mistake of thinking I'll be afraid to use this thing."

Krasnow's face was round and unemphatic, the nose short and wide, mouth and chin blending into his full cheeks. His eyes seemed to belong to someone else; steady, under untidy black brows. He showed his teeth rarely when he spoke; when he did, momentarily, Ewing saw that they were yellow-brown stumps, widely separated. The black hair on his arms and hands was luxuriant; his fingers were the thick, spatulate fingers, with black-rimmed nails cut back almost to the quick, of a man used to working with his hands. In his shabby polo cap and stained shirt, heavy-bellied, he might have been any workman on a street repair job, or loading a truck, or driving one. Ewing realized that he had seen thousands of men like this one in his life, but had never looked closely at one before.

Krasnow pushed his cap back, and immediately looked older; wet

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strands of hair straggled over his brown, bald scalp. Sitting in the straight chair beside the window, he faced the Ewings and Platt, all crowded together in a row on the couch. He held the shotgun balanced on one thigh, in a way that suggested he could aim and fire it from that position, one-handed. "See, my wife died a coupla years ago," he said. "I'm all alone inna world, so I figure, what the hell? Why shouldn' I get mine?"

Ewing swallowed and said angrily, "That's a hell of a philosophy. What about those people up there on the road—why shouldn't they get theirs?"

"You have an awful nerve," Fay said. "Who do you think you are, God? You can't do a thing like that to people!"

Krasnow shook his head. "They'd do the same to me. I take my chances, just like they took theirs. You might even knock me over and take the whole works. I'm just one guy."

Platt leaned forward over his crossed knees; he was folded up like a jacknife on the couch, all joints and bony hands. The cigarette in his fingers trembled and spilled ash. "When are you going to sleep, Krasnow?" he asked.

Krasnow pantomimed a bark of laughter. "Yaa," he said. "You hit it there. We been on the road a day and a half already, and all I got was cat-naps. That colored boy, Percy, he'd as soon kill me as look at me. I figure I got to get through two more nights, maybe three before I can sleep. I'm getting old; ten years ago I coulda done it easy."

"You must be out of your mind," Ewing said. "What you're talking about just isn't possible. You can't keep all those people under control forever—you have to sleep sometime."

Krasnow shook his head. "Ya gotta have slaves now," he said. He used the word matter-of-factly. "Nothing else is worth anything. Ya can't get people to work for ya any other way. How's the work gonna get done?"

"What work?" Ewing demanded. "Don't you understand, everything's free now—power, machinery, anything a Gismo will carry. Later on there'll be bigger Gismos, for things like automobiles and prefab houses. What are you going to do, build a pyramid or something? Take your Gismo, why don't you, and let those people go."

"Naa. You're talking fairy tales. Every guy goes off with his own Gismo, and that's it? Not on your sweet life, mister. There's just two ways, and you'll find that out—ya gotta own slaves, or ya gotta be a slave."

"Power hates a vacuum," said Platt. His voice was curiously subdued; he was looking with close attention at the burning tip of his cigarette. "Trouble is, though,

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how you going to keep them down on the farm? First chance they get, they'll cut your throat and go over the wall. Then what?"

Krasnow looked at him directly and, it seemed, curiously. "That's something I gotta work out," he said. "Like now, I got them cars chained together, and I got demolition bombs I can set off by short wave. Live bombs, one in every car. That could be better, but it works. But later on I gotta think of something else. You're supposed to be smart, you got any ideas?"

"I might," said Platt, thin-lipped. His gaze and Krasnow's met.

"Yeah. Well, meantime, I gotta find a place like you said. With a wall." Krasnow sighed. "I heard something about this place around the bend here, so I thought I'd take a look—a long shot. But I can tell from the way you talk, it's no good. I'll head up the coast, like I thought at first. There's plenty of rich guys' places up north, outa the way. Halfa them big shots are away all year. Either there'll be just a caretaker, some old geezer, or else some punks that've moved in lately. Either way, I know how to handle it."

He stood up. "Ewing, you love ya wife and kids?"

Ewing's jaw knotted with anger and fear. He said, "What's that to you?"

Krasnow nodded slowly. "Sure ya do. OK, buster, now you listen. If ya don't want to see them killed, right here, you do like I tell ya. Understand?" Ewing's throat went dry, and he could not answer. "You're coming along with me," Krasnow went on after a moment. "I like the look of ya, and I like ya family, and I can use a scientist like you. So get used to the idea. Now come on outside—yaa, you too, everybody. I got something to show ya."

He herded them through the door. Out in the yard, blinking in the white glare, Krasnow and Platt looked sorrowfully at each other. The shadow of Krasnow's gun was a short black line on the baked ground between them. "I can't use ya, and I can't trust ya," said Krasnow. "So start runnin'."

Ewing looked on unbelievingly. He saw Platt, staring into Krasnow's eyes, shudder and stiffen. Then the tall man was whirling, all knees and elbows, diving down the slope to the terrace below—zigzagging as he made for the shelter of the nearest pepper tree—

The gun went off with a noise like the end of the world. Deafened, uncomprehending, Ewing saw his friend's body hurl itself thrashing into the weeds. The children screamed. The bitter scent of powder filled the air. Through the leaves Ewing could see what was left of Platt's head, a gray and red tatter. The legs went on kicking, and kicking. . . .

Fay's skin had turned paper-

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gray. She looked at him, and the pupils of her eyes began to slide up out of sight. Ewing caught her as her knees buckled.

"Soon as she comes to," said Krasnow quietly, "you and her can start loading whatever ya want on ya trailer. I'll give ya half an hour. And meantime, you can be thinking about why I done that." He jerked his head toward the body in the weeds below.

Up on the road, in the cabs and front seats of all the parked vehicles, the faces of the drivers had turned to look down on them. Their expressions had not changed, but it was as if a common string had pulled them all around, like so many puppets.

VI

At the top of another steep hillside, in Chattanooga, in a two-story frame house, Calvin Sheedy lived alone. It was the oldest house in the district, and the highest; from his windows Sheedy could look almost straight down into all the back yards of his neighbors, all the way to the bottom.

One or two of the houses were deserted, dog kennels empty, grass growing rank and full of dandelions; but most of the neighborhood was still there.

They were having a block-wide, week-long party.

The Hackaberrys, the Carsons and the Plummers were in the Vaughans' back yard, drinking under big beach umbrellas—flushed and tanned, the men half naked, the women no better—screaming with drunken laughter that rose in gusts up the hillside.

Other things, worse things, were going on behind the drawn curtains of the Gillettes' house and the Rosengrans'. Sheedy, scowling behind his windowscreen, knew. He had been watching, and none of the people who had gone into those houses had come out. Gillette and Rosengran's wife, along with young Corcey and his sister from down the street, were in Gillette's house. And Rosengran with *Gillette's* wife, and Rosengran's *brother,* and the *maid* . . .

Sheedy's spindly neck tightened convulsively.

All week he had been praying for guidance, and no guidance had come. Beside him on the table were an open Bible and a shrouded cross-shape—a Gismo, draped in a cloth to conceal it. Since his cousin Ben had brought it on Wednesday, he had not had the courage to touch it, either to use or to destroy it. How could a Cross be evil, as this one clearly was?

Down below, the back door of the Gillettes' house opened suddenly, letting out a blast of raucous music and a staggering woman. The woman came to a wide-legged halt in the middle of the yard: Sheedy recognized Mrs.

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Rosengran, with nothing on but a man's undershirt. Wavering, she looked up the hill straight at him (her eyes bleary—she couldn't have seen him—but then, he was often at that window), and deliberately thumbed her nose.

Sheedy turned away, shutting his eyes tight. Just before, he had glimpsed a man coming out of the house after Mrs. Rosengran. He didn't want to watch it; he had seen more than he could stand.

His arthritic fingers fumbled their way to the Bible, closed it, turned it up on its spine, and let it fall open. Still blindly, he stabbed a fingertip at the page.

He opened his eyes. The text under his finger was Revelation 6:16:

And said to the mountains and rocks, Fall on us, and hide us from the face of him that sitteth on the throne, and from the wrath of the Lamb: . . .

Calvin Sheedy closed the Book peacefully. His movements were composed as he took up the Gismo unshrouded and carried it outside to the edge of his sunlit terrace. Blinking, he set it down on the lid of the big gardening toolbox; he frowned at it a moment, and went back to the kitchen for hammer and nails. Using the longest nails he had, he nailed the base of the Gismo firmly to the toolbox lid, cater-cornered so that the arms of the cross hung over the edge.

The blare of sinful music from down below was in his ears as he worked. He picked up one of the two whitewashed stones that marked the entrance of his driveway: a stone bigger than his head, one that he could lift only with an effort. He trundled it back in his wheelbarrow, knotted a rope around it, and hung it from the big copper hook on the left-hand arm of the cross. The wood groaned, but held.

He pressed the switch, and blinked: there was another white stone miraculously dangling on the other side of the Cross.

Sheedy unhooked it with reverent fingers and laid it at his feet. He pressed the switch again, and there was another, identical stone. He laid it beside the first. The work was hard. He persevered, sweat starting from his sour skin until it poured down his cheeks. Lank gray hair hung down over his eyes. He worked on: press the switch, lift down a stone, lay it aside; press the switch, lift down a stone . . .

In a short time he had a towering pyramidal pile of them, all the same whitewashed color and almost-spherical shape, like a pile of skulls. He rested, gasping and shuddering. His shirt and gray suit jacket were wringing wet, plastered to his bony rib cage, as if he had fallen into a ditch.

Below in the Vaughans' yard,

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no one had yet noticed him. The party was still going on, louder than before.

Sheedy took a deep breath, fighting to get it down to the bottom of his lungs. He wiped his brow on his sleeve, and picked the topmost stone off the pile. With a grunt he lifted it to chest level—poised it—pushed it away.

It splashed with a rustle into the bank of creepers that masked the steep drop below his terrace, and disappeared. An instant later he saw it hurtle out below, going at a surprising speed. It leaped the corner of the Carson hedge and soared across Vaughan's back yard, missing one of the beach umbrellas by a foot. It bounced once more, heavily, just short of the far hedge, and a moment later Sheedy heard it slam into the wall of Hackaberry's house. The hollow echoes bounced back and fourth like pistol shots from one clapboard wall to another.

The record player was still blatting from the open door of the Gillettes' place, but the shouting and laughing had stopped. Sheedy saw a few faces turned his way.

He took up another stone. His arms seemed to be stronger. He aimed, this time, more carefully.

Down into the creepers—out across the hedge—and a *scream,* a bump, a clattering of glass!

Around the toppled umbrella, figures milled like ants. A woman was screaming with pain, over and over, not to be silenced—screaming raw-throated, somewhere invisible under the toppled gay cloth.

"Woe, woe unto thee," panted Sheedy to himself, and heaved up a third stone.

Down it went with a whispering rush, and out, rising, seeming to skim the ground like a terrible head-sized bullet into a chorus of shouts and screams, and another crash of glass!

Voices came up, raw with fury, blurring together. Sheedy raised the fourth stone, light and easy in his arms, and saw the group break apart, the brown bodies scattering. The stone flew into the midst of them, leaving one on the ground, and dropped through the broken window into the house. He sent a fifth one after it, for good measure.

The Vaughans' yard was empty except for the woman who, still invisible, still screamed.

Sheedy picked up a sixth stone and trudged with it a few yards along the edge of the terrace, until he was directly above the Gillette place. The slope of the land made it easy. He was moved to speak again as he heaved the stone out: "*And all the men of his city shall stone him to death with stones:* . . ." THUMP!

The record player stopped. He went back for a seventh stone, and this time carried it in the other direction, and on his first

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try dropped it neatly into the Rosengrans' back bedroom window.

"*He that hath an ear, let him hear!*" he shouted jubilantly, and went to pick up the eighth.

VII

At nightfall, the caravan was winding northward along the ridge highway toward Tejon Pass. The air was cool. Off to Ewing's left the sun went down behind the mountains in great tattered scarlet and orange streamers; the riding lights of the van ahead glowed in the deepening twilight.

Fay and the girls were in one of the house trailers, sharing it with some other poor devil's family. Ewing was alone with the oncoming night, in the steady drone of the engine, with his wrist manacled to the steering wheel.

A slave . . .

And the father of slaves.

He'd had more than enough time to think about what Krasnow had meant back there at the mountain house. Krasnow had murdered Platt for an object lesson, and because he knew Platt would never make a good slave . . . too reckless and unstable. Besides, Platt was unmarried. Platt was not the slave type.

The slave type . . .

Funny to think that there were physicist types even among the natives of the Congo, who had never heard of physics . . . and slave types, even among the physicists of America, who had forgotten there was such a thing as slavery.

And it was curious, how easy it was to accept the truth about himself. Tomorrow, after he had slept and the sun was high, he might fill up with anger again—the brittle anger, so easily broken—and swear to himself, futilely, that he would escape, kill Krasnow, rescue his family. . . . But now, alone, he knew he never would. Krasnow was wise enough to be "a good master." Ewing's lips moved; the phrase was bitter.

What about fifty, a hundred years from now? Wouldn't the slave society break down—wouldn't the Gismo become at last what Ewing had thought it would be, an emancipator? Wouldn't men learn to respect each other and live in peace?

Would it be worth all the misery and death, then? Ewing felt the earth breathe under him, the long slow swell of the sleeping giant. . . . On that scale, had he done good or evil?

He did not know. The car droned onward, following the tail lights of the van ahead. From the west, slowly, darkness scythed out across the land.

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You often wonder, when you read the book-jacket listing of an author's improbably varied occupations ("tea taster, blackjack dealer, girls' basketball coach, xenobiologist and logger"), why the man insists on writing, like everyone else, about Greenwich Village or Park Avenue instead of these obviously more interesting milieus in which he has worked. Avram Davidson, however, has the good sense to make fictional use of his wage-earning experiences. He was once, for instance, the desk clerk in a fifth-rate Southern California hotel. . . .

Negra Sum

by AVRAM DAVIDSON

FOR MOST OF THE DAY AND OFTEN well into the night Mr. Edwards sat in a little cubicle at the head of a narrow shabby-carpeted stairway. People ascended and descended, but there were no angels among them; there were, indeed, wrestlings, but they never ended in benediction. On the window of the downstairs door was a sign reading, in large letters: ROOMS $1.50. In a smaller lettering was the sentence: *And Up, on weekly rates.* No one, so it seemed to Mr. Edwards, ever read past the first line. When he was newly installed in his office he had carefully explained that rooms were *not* available at $1.50 for a single night, that it was necessary to pay for seven nights in advance in order to enjoy this rate; but he had gotten tired of it. . . .

Stumble or shuffle on the steps. "Gotta room fra dollenahaf?" a beery breath through the tiny window. Mr. Edwards shook his head.

"None left. Sorry. *Two* dollars? Two fifty, with bath?" It was surprising how little interest the guests, potential, showed in having a private bath, or even in splurging two dollars for a room and the privilege of using the public shower. When the bars closed at two in the morning the stumbling and shuffling on the stairs increased. Sometimes Mr. Edwards was able to hang up the NO VACANCY sign and go to sleep by half past two. If he was lucky he might be able to as early as twelve.

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Hang up the sign, that is, not sleep. Oh, he went to bed, but even with his eyes closed the procession continued . . . up and down, up and down, past his eyes . . . the red bristly beer-dewed faces that begrudged every copper not slid across a bar . . . the dough-like loose-lipped cunning faces that told—even without words—that Alls they wanted, Bud, was a room for two for just about twenny minutes, Bud . . . the uncertain roving-eyed oh-so-polite faces, "just starting in work and wouldn't get paid till tamorra night" or else "had gotten in town too late to cleck the check, just my doggone luck, Fella; but, uh, first thing in the morning, now—" . . . they passed and they repassed, creating their own light even in the darkness and bearing their own darkness even in the light.

Few of these faces, even if they stayed, ever put down fifty cents for a key deposit, so Mr. Edwards had no need to see them as they departed in the morning. He slept late and would gladly have slept later to put off the hour when he awoke, yawning and gummy-eyed. It is accounted one of the Eleusinian Mysteries that the sun rose at midnight, but for Mr. Edwards it rose at half past nine or half past ten in the morning, and the only mystery was that he was ever able to rise with it.

Last night's warmed-over coffee. Homogenized orange juice. The first cigarette, bearing Death on every puff. Something as bitter as the coffee in the dirty cup: the memory of a Mr. Edwards—not Mister then—who sat in a classroom with folded hands and sang, they all sang, children and teachers, a certain song.

Father, we thank Thee for the Night
And for the shining morning bright. . . .

It *had* seemed shining and bright then. It really had.

Help us to do the things we should,
And be to others kind and good. . . .

Well, as soon as breakfast was over, the things we should do were as follows: Make a list of all guests delinquent in rent and lock them out by noon, if there was baggage to lock, or else have the maid make the room up to rent. . . . Wake up and escort out, no matter what language, any gin-weary old trulls whom the transients may have sneaked up the back stairs. . . . Count the laundry and bundle it before Louie got there with the clean linens, and have his blood if there was any shortage in the count. . . . Roust from their rooms the two or three old pensioners, turn off their dim electric lights, and send them out into the friendly streets—"Until

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the maid gets through"—the hotel having no lobby or lounge. *Kind and good?* Not in *this* business, brother.

But by twelve fifteen Mr. Edwards was back at his little window and—for the first and last time during the day—he was smiling. At twelve fifteen—no matter when he'd come in the night before—Jack Tristram went out, dressed for tennis or the beach, clean-garbed, clear-eyed, smooth-combed, always with a smile and a cheerful word for Mr. Edwards. The other guests were deadbeats, hasbeens, neverweres. What had Jack in common with them, indeed? with his long-limbed, smooth-skinned, beautifully built and handsome body and face, his youth, his charm? If he never worked, what of it? If he was now and then a few days due on his rent, Mr. Edwards covered up for him. It was a pleasure. When Jack showed those clean white teeth in a half-smile, half-grin that crinkled the golden-brown skin around his eyes (incredibly blue) and said, "Well, another swell day, and how's my pal?" Mr. Edwards knew it really was a swell day, that he really was Jack's pal. He felt the world, after all, was not completely rotten, if Jack could go happily off to tennis or swimming. He felt renewed in strength to put up with the vile-tempered MacIde in #20 who walked up and down on the thin carpet with heavy shoes, the stupid Miss Worth in #6 and her ridiculous never silent twittering voice, the sow-like Mrs. Roltt in #11 who dropped food all over the floor so that it swarmed with roaches, and the incompetence of Mary the chambermaid. . . .

"How's my buddy on this beautiful day?"

"Fine, Jack, and you? Going swimming?"

"Ee-yup. Goin to see whut the waves washed up fr me today." He would wink drolly. Mr. Edwards would chuckle. Officially, of course, he had to turn away his eyes when Jack came back, as he often did, with a girl as young and attractive as himself, their feet trotting nimbly and swiftly up the stairs, their hands joined and arms swinging, her eyes fixed upon his face, her breath swelling the proud promise of her young bosom; into his room together, the click of the night latch, the rattle of the chain-bolt, the single submissive squeak of the bed.

On this day Mr. Edwards was feeling worse than usual. He had made a mistake in calculating the fiscal status of one Sweeney, a port-soaked frycook in #5, who—after enjoying a night's free lodging—had broke bivouac and departed with all his gear. This was certain to affect for the worse the never very jolly manner of Mr. Brock, the owner of this and several other

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cheap hotels and "guest houses." Two downy-faced chicken Marines, failing to prove that rum and vodka were socially compatible, had vomited on the floor, and Mr. Edwards was obliged to clean up because Mary said such things kind of turned her stomach, like. And all night long, in the room next to his, the sullen feet of that damned MacIde had clumped back-and-forth, back-and-forth.

"How's m' cobber this lovely noontime?" Jack Tristram stood grinning at him. It seemed a vacuous grin to Mr. Edwards. He observed, only half-aware, that Jack was not wearing his silver chain as usual. He noted that Jack had failed to use any mouthwash and he was disturbed at having noticed it. Stupid grin . . .

"Your cobber'd feel better if he could see the color of your money for a change!" he said, snappishly.

"*Huhhh?* Oh. Uh, well, yeah . . . sure." He backed away, uncertain, grinned emptily again, and galloped down the steps.

Mr. Edwards grunted. He locked the office and went out in the dingy hall, tracing down Mary by her invariable spoor of spilt scouring powder and dropped towels, traced her to the showers where the dirt was just moved from one corner to another and the polish left to dry to a gray crust on the brightwork. There she stood, mop in hand, staring dreamily at the scabrous wall and patting her dyed-red hair with its gray roots.

He had seen her six days a week for several years and never had she seemed any more to him than a necessary nuisance. Her mild good nature had merely annoyed him. Now, suddenly, he felt an overwhelming affection for her. She seemed charming. He seized her about the waist and planted a smacking kiss on her cheek.

"How is the most beautiful chambermaid on Southwest Third Street?" he sang out. Mary turned deep rose-pink.

"Why, Mis Ter Ed Wards! Oooohoohooheeyeeyeehee!"

"Why aren't you making some good man happy? Why aren't you making *me* happy? Hey, Mary?" He squeezed.

"OhohahahaNowstopPIT!" But she wasn't angry.

"Well, reluctant as I am to do so, I must tear myself away from this sweet vision. But I shall return." And he was off. Mary gazed after him, shook her head, said Well she never. She looked at the floormop, flicked its dirty coils aimlessly for a moment. "Now what did I want to tell him?" she asked herself. "Oh," she said, and rummaged in her packrat's nest of a pocket. Two tiny bars of soap, a half-broken stick of gum, three violated books of matches, a locket on a chain, a ticket to a TV show, a penny . . . A locket on a chain. She ran out into the hall.

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"Hoo hoo! Mr. Edwards!" He came back, eyebrows raised in inquiry, took her right hand and kissed it.

"Yum yum," Mr. Edwards said. Mary tittered.

"Ooo, look what I found in the shower, now," she said. "A locket on a chain, silver it looks like, though I spose it could be that now german silver, like imitation."

"Why not keep it to grace the lovely contours of your throat?" He leaned over, mouth apout, as if he were about to—

"Now, you *stop*. No, uh-uh. It probly blongs to some now person. You better take it." And she dropped it in his hand.

"OK. See you later. Keep track of your towels." He was off again, swinging the locket. . . . *Was* it familiar to him, or did he only think so?

"Such a *nice* man," Mary said, looking at his retreating back.

Mr. Edwards rounded the corner and almost ran into the clump-footed MacIde. Who stood there, smiling shyly and awkwardly. "Oh," said Edwards.

"Hope I haven't bothered you by my nocturnal prowlings," MacIde began. Absently he caught the locket Edwards was swinging on its chain.

"Oh, that's all right," Mr. Edwards said. "I wish all the guests were as little trouble as you." *Very* nice fellow, MacIde.

The locket clicked open in MacIde's hand and both men bent over to look. Inside was a cameo, about the size of a thumbnail. Black on a pink background was the delicately carven head of a young woman, and black were the letters which rimmed it.

"Pretty, isn't it?" Mr. Edwards remarked. "What's it say?"

"I suppose I have enough Latin for that," MacIde said. "*Ex Africa aliquid semper novi*— 'Out of Africa always something new'—Plautus? Pliny? One of those lads. And as for this other: *Negra sum sed formosa*— that's the Vulgate for sure. 'Black am I, but beautiful'—well, she *is*, isn't she? But I must say, old Jerome, saint or not, shows himself unmistakably a white man, doesn't he?"

"Mmmm?"

"I mean, 'Black am I, *but* beautiful.' . . . Now, the original Hebrew, if you'll pardon that scholastic cliché, is *Sh'chorah ani, v'naavah:* 'Black am I, *and* beautiful'—true of all of us, in a way, isn't it? I mean, well, we all have our black aspect, and yet, really, we all have—"

"Our beautiful aspects, too, you mean?"

"Exactly." MacIde beamed. "How well you understand me . . . and yet, here we are, contrasting the two—still committed to that attitude—and it may well be that the two are one, or two aspects of the same thing . . . Whose is it?"

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"Oh, mmm, what?" Mr. Edwards, who had been thinking what a pleasant fellow MacIde was, after all—couldn't remember when he'd met anyone he liked as well—said, "Oh, the locket . . . well, I'm not sure I know whose it is. I'll keep it for a while to see if it's claimed." And they parted with pleasant words, both holding on to the locket until the last moment.

The afternoon drew to a close. It was about time for Jack Tristram to be back, girl in hand; but no Jack. Instead, someone looking for Jack.

"You're *sure* he's not in?" the youngish man insisted. "You're not just *saying* that?" Mr. Edwards shook his head. The youngish man clicked his tongue and looked petulant. He smelled sweetly. "How long has he lived here?" was his next question.

"Oh, a while," Mr. Edwards said, vaguely.

The youngish man clicked his tongue again. There was silence.

Slouching up the steps came Miss Worth, a withered sagging virgin of sixty-odd, twittering to herself. She saw the two men and stopped, embarrassed. She smiled an uncertain smile, hesitated, and finally sidled by. Once past, she minced down the hallway, stopped a moment as if to pick up something—and looked back, but the men were not watching. She went on her way.

"He owe you any money? Jackie, I mean?" the youngish man asked, after a silent spell. Mr. Edwards looked at him, said nothing. "Well, he owes *me* money. And not *just* money. Oh, the help and assistance I gave that un*grate*ful—and *then,* just as calmly as you please, *out* he goes through the french windows. My *mo*ney, my *clothes,* my *cuff* links . . ." He tightened his lips for a moment. "*And* a certain *objet d'art* of both financial and senti*ment*al value." A woebegone look settled on his smooth face. "Since he left, *ev*erything seems to have gone wrong."

A slow solid step on the stairs, and Tristram was there. He was in bathing trunks and carried his clothes on his arm. He was alone, there was no girl in sight, and he looked as woebegone as the youngish man. Who at once ceased looking woebegone and began to look waspish.

"*Well!*" he now said, and tapped his foot.

"Oh, hullo, Robbie," Tristram said, listlessly.

"Thank you for keeping in *touch* with me. It was very easy for *you* to find *me*." Tristram scratched the calf of his left leg with the big toe nail of his right foot, and looked at the rug. "*How*ever, never mind. There are a few things I *will* trouble you for. The clothes you may keep—if you can en*dure* to conceal that body beautiful. The cuff links, as I am *sure*

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you know, were a gift from my aunt and—"

"I haven't got 'em now. I'll get 'em to y'."

"*Pawned* them, I suppose? *And* the locket, the pride of my Sicilian souvenirs?"

Tristram's hand went up to his neck, groped without finding anything, and finally occupied itself with scratching his broad smooth chest. "I haven't got it. I, uh, I suppose I must of lost it, Robbie."

Mr. Edwards remembered suddenly. His hand slipped in his pocket. It was empty . . . well, in that case, he would say nothing. Lost once, lost again: let it stay lost.

"You *what?*" Robbie's voice rose to a shriek. He put his hands to his temples. "Oh, damn the day I first saw you! What I ever saw *in* you, I don't know. Beef. Beef. That's all you are: Just so much *beeeefff!*"

Tristram scowled. Looking at him, Mr. Edwards was inclined to agree with Robbie. Wearing only his trunks, Tristram did remind him now of nothing so much as a well-trimmed side of beef. Edwards wondered why he had ever thought him charming.

Robbie shrilled, "Why, you're only a common, ordinary *thief!*"

And there was a noise that went *chunck*. Robbie staggered back against the wall, Tristram's arm dropped to his side. Then he moved a step forward, and Mr. Edwards opened his door and scurried out between them.

"All right, now, that's enough of that, you better stop that, I'm warning you, are you hurt?"

Robbie held his hand to the side of his face. He made a noise between a sob and a snuffle. Still clutching his cheek, he moved slowly down the steps. Tristram looked down. Then, when the door closed below, he spoke.

"I'll get you that money I owe you tonight. My uncle'll let me have it. I'm going to ask him for a job, too. Sick of this kind of a life. Sick of those damn tramps of girls, and of guys like Robbie . . ."

He walked off towards his room. En route he passed Miss Worth, coming from hers, fingers fiddling nervously with a silver chain around her neck. "Hi," he said, suddenly cheerful. Miss Worth blushed with delight and surprise.

"Been swimming?" she twittered, unable to keep looking at him, and unable to keep from looking at him.

"Ee-yup. . . . *Say!* How about you and me going out for a movie and an ice-cream cone or something, one of these days? Hmm?"

"Silly!" Miss Worth was scarlet. "Why, I'm old enough to be your mother."

"Well, I guess I can take my mother out if I want to. I'm serious, now. I'll be seeing you about it. G'bye now." And he gave her hand a shake.

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Miss Worth knew what she had, and although she'd hardly dared hope it would work, it *was* working.

Black am I, but beautiful. . . . Oh yes, *she* knew Latin; Dear Papa had taught her—*he* had known she was beautiful, but not the others—dogs, all of them, rogues, beasts—how shamefully they had treated her; but no longer: now they would come crawling—*crawling, groveling* . . . Miss Worth laughed aloud as she came up to Mr. Edwards' desk.

He had watched in amazement. What was Tristram bothering with *her* for? But now he found himself smiling back at her, leaning across so as to speak to her when she came to the desk. She wasn't young, she wasn't handsome . . . but still . . . there was *something* about her that was certainly mighty attractive He just wondered how it was he'd never noticed it before.

Coming Next Month

Next month's feature novelet, inspiring a cover by Kelly Freas, is *Stepping Stone,* an unusual and ironic view of Conquerors From Space, by the unexpected but welcome team of William Morrison and Frederik Pohl. This December issue, on sale at the end of this month, will also feature an important article in which Isaac Asimov, as a professional biochemist, attempts a logical analysis of the facts behind the current politico-scientific arguments about the dangers of strontium-90 fallout. Since the technical publication-date is Hallowe'en, we are compelled to include a new story by that incomparable modern witch, Shirley Jackson. Among the assortment of other stories, new and old, is a wonderfully funny fantasy of the great Cochise by Amerindian student Oliver La Farge; and in Charles Beaumont's quarterly roundup of films, you'll learn, to your (and Mr. B's) astonishment, that there *are* some good s.f. pictures current!

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"Reading the remarks of the leading astronomers of half a century ago," Robert S. Richardson wrote in EXPLORING MARS, *"leaves one feeling very discouraged. So many of the things they believed about the starry heavens were dead wrong. . . . Perhaps most of our own cherished beliefs about the stars and planets will likewise be wrong." But until we have the firsthand evidence of exploration, we seize eagerly upon even fragments of observation and speculation which may help to give us a true picture of worlds other than our own. The recent meeting of the International Mars Committee deserves the attention of every science fiction reader; and there could be no more fitting reporter of its proceedings than Dr. Richardson of Mount Wilson Observatory, a professional astronomer who is also a popular writer of science articles and (as Philip Latham) of science fiction.*

The Facts About Life on Mars

by ROBERT S. RICHARDSON

IF YOU HAD BEEN EXPLORING THE country in the vicinity of Sedona, Arizona, about six o'clock on the evening of June 17, 1957, you might have encountered a group of some hundred people, men and women in about equal numbers, having a chuck wagon picnic on the slope of a hill appropriately known as Bell Rock. Let us suppose you mixed with these people and struck up a conversation with them. You might have had a bit of trouble in placing them. They lacked the boisterous attitude that business men sometimes affect when out on a holiday. In fact, I doubt if you would have heard a mention of business in the little groups scattered over the hill eating precariously from paper plates. I doubt also if you would have heard any mention of the income tax burden, or baseball, or how to get tickets for *My Fair Lady,* or literature, although there might have been some casual references to science fiction. Before very long, however, you would probably have begun to suspect that these people were some kind of scientists. Also, that they possessed an extraordinary knowledge concerning the planet Mars. Not

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knowledge obtained from somebody's book but knowledge gained at the source from firsthand observation. If you had a question about Mars you would have had no trouble getting an immediate authoritative answer.

Statistically this group had no right to exist. For clustered upon that hillside was the bulk of the world's knowledge of Mars. In the natural course of events you would never expect to meet such a highly selected bunch of people in a million years.

Now there is nothing unusual about scientists getting together to discuss their particular problems. They do it regularly every year. What makes the meeting of the International Mars Committee of historical significance is that it was the first time that astronomers *and* biologists have met to discuss problems peculiar to the planet Mars. Such a meeting has been long overdue. For years people have been asking astronomers if there is life on Mars, and astronomers have often been foolish enough to try to give them an answer. But astronomers had no business trying to answer such a question, since few of them know anything about biology beyond what they have picked up from reading *The Doctor's Advice* in the daily papers. The correct procedure was for astronomers to describe conditions on Mars to the biologists, and then let the biologists render an opinion. But scientists are accustomed to working in tight little groups with few lines of communication between them. To bring astronomers and biologists together a new science had to be born—the science of astrobiology. From now on we may expect rapid developments in this new and fascinating field of exploration.

I

Our sole evidence of extraterrestrial life is the seasonal changes in the dark areas on Mars called "maria," which suggest the growth and decay of vegetation. With the onset of spring in a hemisphere the maria near the polar cap begin to darken; this wave of darkening spreads toward the equator, and over into the opposite hemisphere. In the fall and winter the maria fade and their outline grows dim. The color changes are complex and do not correspond to the seasonal changes characteristic of terrestrial vegetation. These changes occur so regularly that an experienced observer can usually fix the Martian date with surprising accuracy from inspection of a photograph or drawing. There are irregularities, however, and progressive changes in certain regions have been noted which continue for years. A surprising feature of the opposition of 1954 was the appearance of a

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new dark region about the size of Texas, in an area that is practically bare on the maps of Schiaparelli and Lowell. It is the largest dark marking that has developed on the planet in telescopic history.

The seasonal changes in the maria would seem to be rather good evidence for the presence of vegetation on Mars, but they do not constitute proof. Nearly half a century ago Svante Arrhenius, a Swedish chemist and Nobel prizewinner, advanced the idea that the changes in the maria might arise from moisture from the polar cap reacting with hygroscopic surface minerals. Recently Dean B. McLaughlin of the University of Michigan has developed an ingenious hypothesis in which the maria are attributed to dark minerals deposited from volcanoes situated at the tips of such V-shaped markings as the Syrtis Major, the Margaritifer Sinus, the Forks of Aryn, etc. I think I can say without prejudice that the volcanic hypothesis has not received much support from other students of Mars, but still inorganic hypotheses of this kind cannot be ignored. The vegetation hypothesis also encounters severe difficulties: for example, the absence of oxygen from Mars, the arid climate, the extreme daily temperature range. To determine the nature of the maria we need independent evidence from another source.

II

Let us consider a rather simple observation which should give us immediate evidence as to whether the maria consist of green vegetation like that on the earth.

Chlorophyll is a poor reflector of violet, blue, and red light, and also our eyes are not very sensitive to these colors. Green is the only color which plants reflect well and to which our eyes are highly sensitive. As a result, vegetation with a high chlorophyll content appears to us as green, with perhaps a slight tinge of yellow.

The spectral region where chlorophyll reflects powerfully is in the infrared, just beyond the range in sensitivity of our eye. This is shown in a striking manner by photographs taken in infrared light. If the exposure time is adjusted so that the sky comes out about the right intensity, the grass and trees in the landscape will be so badly overexposed that they appear white, as if covered by snow. If the same scene is photographed in red light the grass and trees come out dark, almost black.

The application to the maria should be clear. Let us photograph them in red light and then in infrared light. If the maria consist of green vegetation they should appear dark in red light but bright in infrared light. In fact, in infrared light we might expect the maria to outshine the bright deserts.

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Such photographs have been taken with rather disappointing results, depending upon your point of view. The maria have essentially the same intensity in red and infrared light. Taken at its face value this does not afford much encouragement to the proponents of the vegetation hypothesis. But we must remember that the reflectivity of chlorophyll varies with conditions, depending upon the season, the nature of the plant, whether we are looking at the upper or under side of the leaf, etc. The Russians under G. A. Tikhov have carried out extensive observations on the reflectivity of vegetation growing under Mars-like conditions on the elevated Pamir plateau of central Asia. They find that vegetation growing in an excessively cold dry climate is considerably bluer than the same vegetation growing in a temperate climate. In particular, the deep red absorption band in the reflection spectrum of chlorophyll is missing. Thus it appears we should proceed with caution before ruling out plant life on Mars from evidence based on its spectral characteristics only.

A cogent argument for maria composed of some sort of living substance was advanced in 1950 by the Esthonian astronomer, E. Opik. He pointed out that the maria have the power of regeneration. They fade in the winter but always come out strong again in the spring. Suppose the maria were simply dark areas exposed on the surface of the planet. What would happen in the course of thousands of years? It seems inevitable that they would become covered with dust, grow dim, and finally become indistinguishable from the deserts around them. The idea is so obvious we wonder how it could have escaped us so long. Hence we seem forced back to the vegetation hypothesis despite the difficulties in the way.

There is another common form of plant life which does not contain enough chlorophyll to show in their reflection spectrum. These are the lichens and dry mosses. They reflect light nearly uniformly all through the visible and infrared spectrum as the maria do. Also the lichens are the hardiest plants on earth. They grow under the most adverse conditions. They are found in the desert and in dark caves. They grow by the sea and on high mountain tops. Often it is hard to tell whether lichens are alive or dead. They will survive when doused in liquid air. It is possible certain types might even survive if transported to Mars.

III

Since about 1950 the notion of a "lichen-like" growth on Mars has gained so steadily that we have gotten into the careless habit

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of referring to "the lichens on Mars," as if we actually knew they were there. The lichen theory was severely criticised before the Committee by Frank Salisbury, a plant physiologist from Colorado State College. I had met Salisbury several years earlier, when as a graduate student he had read a paper on Martian vegetation before the biology department at the California Institute of Technology.

Salisbury observed that it is practically impossible to reconcile the growth of lichens with the behavior of the maria. The type of lichen most likely to survive on Mars is the flat scaly growth found on bare rocks and tombstones. For an area to show a particular color the cover must be nearly complete. In our deserts some thirty per cent of the surface may be covered, yet when viewing from a distance of several miles we would describe the region as "barren." Although lichens are found in all our deserts they never form a conspicuous part of the landscape. In northern climates lichens often do occur in a cover sufficiently dense to be noticeable from a distance, and perhaps to appear as the maria on Mars. But the water present in the north is much greater than on our deserts, and is certainly far more abundant than we can allow on Mars.

(I might remark here that under the best seeing conditions the maria do not appear solid, but show structural details like crossed lines smudged by rubbing. I have never seen this effect myself but it is well attested by experienced astronomers.)

Salisbury also emphasized that the changes in the size, color and form of the maria are out of all proportion to those shown by lichens. The flat scaly type grow very slowly at the rate of a few millimeters per century. They could not possibly grow fast enough to produce the new region that appeared in 1954. The only lichens which approach the rate of growth observed in the maria occur in such habitats as dead wood in a rain forest, or perhaps again in the north. The color changes might be due to a going into dormancy in winter followed by a rejuvenation in spring. Many lichens and mosses do become brown in winter and green in the spring, but they are usually the types that grow where there is considerable moisture.

Salisbury was one of the few speakers I would have liked to hear longer than the time permitted. His paper aroused considerable discussion. It was best summed up by one speaker who declared emphatically that we don't know anything about vegetation on Mars, a remark that drew a spontaneous burst of applause from the rest of the audience.

Another paper which was

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awaited with keen interest was by A. Dollfus of the Meudon Observatory, Paris, France, entitled "Polarimetric and Photometric Observations Indicating a Possibility of Life on Mars." Dollfus turned out to be a much younger man than I had expected. Since he was publishing as early as 1946 he must have been doing serious work while he was still in his teens. He described laboratory measures he had made on the polarization of light* from samples of several hundred minerals. These measures were compared with the polarization observed for the bright desert regions of Mars. The only sample that matched the observations of Mars was pulverized limonite (Fe_2O_3), a reddish brown mineral of about the same coloring and reflecting power as the bright areas. The polarization curves for Mars and limonite are of a peculiar type, and the fact that they agree so closely made identification highly probable.

This result is in apparent conflict with that obtained by G. E. Kuiper of the University of Chicago, who found that the reddish brown oxides of iron do not reflect light like the bright desert regions of Mars. The best match was with a brownish fine-grained igneous rock similar to felsitic rhyolite. Kuiper was not present at the meeting, but according to his latest statements on the subject he believes the maria are probably vast lava fields somewhat like those on the moon, and perhaps those on Mercury. He remarks that terrestrial lava flows are striking features when observed from the air, and retain their visibility for thousands of years even in regions where dust storms are common. They may eventually disappear from sight, however, if there is an abundant growth of vegetation. While sand may fill crevasses in the lava, it blows off the vitreous surface, so that lava fields have the regenerative power invoked in favor of the vegetation hypothesis. As a tentative working hypothesis he proposes that the maria are lava fields with a partial cover of some very hardy vegetation.

After Dollfus sat down it occurred to me I hadn't heard him say anything about life on Mars. (There was an air conditioner in the back of the room that always came on just when you were particularly anxious to catch a remark.) I had to corner him later to get this part of his paper. He had also made polarization measures on the maria but had less success in matching them with terrestrial substances. Neither mosses nor lichens gave similar polarization curves. He did find some correspondence, however, between cer-

*When the vibrations are restricted to a particular plane the light is said to be plane polarized. Polarized light is indistinguishable from ordinary light by the eye, but may be readily detected by various optical devices.

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tain types of microscopic plants such as algal cryoplankton, the colored plants and animals which collectively produce the effect of red or green snow. This is a novel idea which does not seem to have received the attention it deserves.

The ideal observation is one which would give us direct evidence of the existence of life on the planet, regardless of all other considerations. The indirect approach is like trying to decide whether anybody is probably awake in a small town from a discussion of the characteristics of people in that neighborhood, the state of the weather, the day of the week, the time of night, etc. But the direct observation of a light in a window is an excellent indication that someone is awake and stirring.

William Sinton of the Harvard College Observatory has tried the direct approach by searching in the spectrum of Mars for an absorption band at 3.4 microns, which is shown by all organic molecules. Light reflected from any type of vegetation would be expected to show this absorption band, since the light penetrates beneath the surface before being reflected.

After some control observations on terrestrial vegetation, Sinton observed the infrared spectrum of Mars with the 61-inch reflecting telescope of the Harvard Observatory, using a lead-sulfide cell cooled in liquid nitrogen. So little energy was available in the Martian spectrum in this region that he was unable to make separate measures on the maria and deserts, but had to use integrated light from the whole disk. He also took some control observations on the moon. From a statistical discussion of his results he concluded that the 3.4 band was present, and that it is "extremely likely that there is vegetation on Mars." It would seem desirable to repeat these observations at the next favorable opportunity using more powerful equipment capable of separate observations on the maria and deserts. Unless we are completely wrong in our ideas about vegetation on Mars we should certainly expect the band to be better marked in the spectra of the maria.

IV

The only paper relating to animal life was one entitled "The Behavior of Microorganisms under Simulated Martian Environmental Conditions," and represented a collaboration of John Kooistra, Jr., M.D.; Roland B. Mitchell, Ph.D., of the Department of Microbiology, SAMUSAF; and Hubertus Strughold, M.D., Ph.D., Chief, Department of Space Medicine, Randolph AFB, Texas. (I hope I got in everybody's name and title correctly!). Their experiments were conducted in a "Marsarium," a

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chamber in which Martian conditions could be closely simulated. Samples of bacteria from the soil of Texas and Arizona were placed in the Marsarium in a nitrogen atmosphere under a pressure of 64 mm. of mercury, or roughly one-tenth of the atmospheric pressure at sea level. The air was pumped out of the soil and replaced by nitrogen and a trace of water. The samples were then subjected to a temperature range of from 70° F to —95° F every 24 hours 40 minutes, corresponding to the length of the average Martian mean solar day.

They found that the population declined at first owing to the destruction of the aerobic bacteria. But as the anaerobic (non-oxygen-requiring) forms adapted themselves to Martian conditions the population multiplied and thrived. The experiments indicate that life has the ability to perpetuate itself in an environment wholly different from that on earth. I hope I am not misquoting Dr. Strughold, but I believe he remarked in addition that the tests suggest life might be found not only on Mars, but also on such seemingly hopeless worlds as Jupiter and the other major planets.

V

One of the real surprises of the meeting was an announcement by G. de Vaucouleurs regarding the phenomenon on Mars known as the "blue clearing." Attention was first called to this effect by E. C. Slipher of the Lowell Observatory in 1937, when an example occurred so outstanding as to warrant immediate announcement. Photographs of Mars taken in blue and violet light ordinarily show only a blank disk with a greatly enlarged polar cap, and perhaps a few bright clouds. But on rare occasions the Martian atmosphere will suddenly become transparent in blue light, so that the surface markings show almost as clearly as in yellow light. Blue clearing occurred in 1939 and again much better in 1941. A search through the extensive records at the Lowell Observatory disclosed other examples, although none so good as those in 1937 and 1941. The clearing was found to occur always when Mars was near opposition; that is, when Mars was opposite the sun as seen from the earth. On the other hand, blue clearing did not always occur when Mars was in opposition.

The rather close approach of Mars in 1954 was awaited with considerable interest to see if blue clearing would occur near the opposition date of June 25. I was skeptical of the reality of the effect, and had little expectation that our blue photographs would look any different from usual.

I did not have the use of a telescope until June 26, when clouds prevented observations. But the

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very first glance at our blue photographs taken June 27 revealed the markings so distinctly as to leave no doubt that blue clearing had occurred. The Martian atmosphere remained abnormally transparent until July 1, after which it began to dim and was about as opaque as usual by July 3. According to Slipher, who was able to observe Mars continuously from his station in South Africa, the blue clearing was very appreciable in June, although not so conspicuous as in some past oppositions.

My blue photographs in 1956 were disappointing in that they showed Mars only as a blank disk except for the polar cap. There was never a trace of clearing but my observations were so scattered I felt I might easily have missed it. From conversation with other astronomers, however, it appeared they had had little more luck than myself. They were also disgruntled over the dust storm which began on August 30, just when the planet was coming closest, and which effectively blotted out most of the disk. My impression when I went to the meeting was that no conspicuous blue clearing had occurred in 1956. This was confirmed by a formal report from one of the astronomers at Lowell.

Then Dr. de Vaucouleurs reported on observations of Mars made at the Yale-Columbia station in Australia. He showed photographs of remarkable blue clearing that had occurred from August 27 to September 9, while observations were in progress at the Lowell Observatory, *but on the opposite side of the planet.* What seemed most incredible of all was the fact that blue clearing had occurred while the Martian atmosphere was filled with dust.

The nature of the blue clearing is still a matter of speculation. The fact that it has always been found to occur near opposition should be regarded with caution. We observe Mars most intensively at this time and hence are most likely to catch any changes that occur on the disk. The clearing does not occur over the whole planet or even over a whole hemisphere but is rather patchy. Thus the Syrtis Major may show distinctly while neighboring regions are obscured. The clearing comes and goes rapidly apparently within the space of a few hours.

On the earth we are protected from ultraviolet radiation from the sun principally by a layer of ozone (O_3) from 6 to 25 miles overhead. Mars can have no such protecting layer since there is little or no oxygen in its atmosphere. Instead the blue haze layer would seem to act as a sort of substitute for our ozonosphere. (I have read stories in which Mars is endowed with an abundance of ozone. Where did this idea originate anyhow?) The chief difference is that our ozone layer is always up there protecting us, while the blue haze on Mars

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gives out occasionally. Human beings would not be so much endangered by exposure to ultraviolet radiation as vegetation, since large organic molecules are disrupted by excess of ultraviolet light. Attempts have been made to detect evidence of blighting in the maria after the blue clearing of 1939 and 1941, with inconclusive results. There is some indication that the normal seasonal color variations were interrupted, but better observations will be necessary to establish the reality of the effect.

If you observe the sun in the light of hydrogen you may chance to witness a sudden spectacular increase in brightness over a group of sunspots called a solar flare. The flare probably emits much stronger radiation in the ultraviolet than the light we see in the visible region. The ideal situation would be to have a flare occur on the sun during a period of blue clearing on Mars. The next close approach of Mars will be in November, 1958. Since sunspot activity will still be at a high level at that time, it is within the bounds of possibility that such a coincidence may occur.

VI

The difficulties involved in discerning markings on Mars and recording these impressions on paper are too obvious to mention. The best way to form an appreciation of these difficulties is to try to sketch the planet from life at the telescope sometime. You will find it hard to record even the coarser markings, to say nothing of the fine details that come and go in flashes of bewildering complexity. The photographic plate and electronic recording devices have replaced the eye in practically every field of astronomy except planetary observing, where visual observations are still of great value. Astronomers try to sketch Mars as carefully as they can, but it is possible that their results are subject to psychological and physiological errors of which they are totally unaware. Thus it is conceivable that a person who is color-blind might be able to see canals better than a person with perfect vision. Suppose the canals are pale blue in color. A person with perfect color vision might not be able to detect them if their contrast with the background of the planet is too low. But a person blind to blue light might be able to see them easily, since they would appear black and stand out against the disk in strong contrast.

A highlight of the meeting was the opportunity to have our eyes tested by Dr. Ingeborg Schmidt, of the Division of Optometry at Indiana University. When we consider what an important bearing color vision may have on Martian observations it seems strange that astronomers have ignored it for so long. Those who passed the color

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vision test with a perfect score came out of the examination room with a smug complacent expression, while those found to have a color deficiency looked correspondingly depressed. Incidentally, men, take my advice and never argue with your wife over anything connected with color perception. About 1 man in 12 is color-blind whereas among women the ratio is only about 1 in 500. A color-blind woman is as rare as a rain cloud over the Trivium Charontis.

VII

I will now try to summarize the present state of expert opinion concerning Mars.

THE CANALS. There was only one paper on the canals describing some visual observations. There was scarcely any discussion on these markings. Efforts to observe the canals with the image intensifier were not so successful as in 1954.

THE DESERTS OR BRIGHT REGIONS. Observations of the bright regions in polarized light closely match the polarization curve of limonite (Fe_2O_3). I think we may attach considerable credence to these observations. Although other observations do not match the color curve of highly oxidized ferrous compounds this may be due to the state of the specimens studied; for example, to what degree they are pulverized, etc.

THE DARK REGIONS OR MARIA. Nature still unknown. I think most astronomers are inclined to regard them as consisting of some kind of "living substance," rather than being of purely mineral origin. But if the covering is due to vegetation we don't know what it is. The idea of lichens has been too much emphasized. Polarization measures show some agreement with the curves obtained for microscopic organisms such as cryoplankton. Spectroscopic evidence has also been obtained from observations of the absorption band in organic substances at 3.4 microns.

ANIMAL LIFE. No observational evidence whatever. But anaerobic bacteria have been grown under conditions closely simulating those on Mars. The lack of oxygen, however, would seem to preclude any high form of life. Discussions of life of an entirely different kind from that known on earth seem to be too speculative to be of interest.

THE ATMOSPHERE. Carbon dioxide the only gas for which we have observational evidence. The atmosphere probably consists of about 98% nitrogen, slightly more than 1% argon, a little carbon dioxide, and a trace of oxygen thrown in for consolation.

THE BLUE HAZE. The Martian atmosphere is usually opaque to blue light, but occasionally it may clear suddenly for a few days. The nature of the blue haze layer is unknown. It would seem to serve

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Mars as a shield against ultraviolet radiation, somewhat as we are protected by the ozonosphere. The nature of the blue haze layer is probably the hottest problem confronting planetary observers today.

Looking back it seems to me the most important thing I got out of the meetings was a kind of feeling about Mars rather than any specific bit of information concerning the planet. This feeling is that plant and even animal life of some kind probably exists there, despite unfavorable conditions. It must be emphasized that definite proof is still lacking. But each time the Red Planet returns we are attacking with new and more powerful instruments. The break-through may come at any time.

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Allen Kim Lang has been writing (and selling) since 1950, but only in the past year or so has he begun to hit his stride. Like many of us, he is equally fascinated by science fiction and by crime, with appearances here and in Astounding *balanced by sales to* Manhunt *and* Alfred Hitchcock's Mystery Magazine. *You'll be seeing a good deal of him in these and many other markets, as he creates (in his spare time from a laboratory job in a blood bank) stories like this F&SF debut, fresh in concept and in the telling.*

Ambassador's Return

by ALLEN KIM LANG

"OF COURSE YOU'LL TEACH OUR NEW Ambassador French," I said, meaning it as a joke.

Phoenix, too young to have learned yet the value of maintaining a diplomatic calm, snorted. "French? To converse with the inhabitants of Sirius IV, we should teach Joe Magarac French?" His grin was lopsided with irony. "We might as well have Joe fitted for a pair of striped pants and a claw-hammer coat, teach him 'The Star-Spangled Banner' and 'God Save the King.'"

"Though your proposals are meant facetiously, Mr. Phoenix, they in fact hold a kernel of truth," I said. "Our Ambassador must respect the doings of humanity if he's to serve humanity. The Family of Man is an ancienter concept than Ohm's Law, son."

"Mr. Assistant Secretary," Phoenix said, his voice pitched at an argumentative level. "I must remind you that I was given the job of designing our Ambassador to Sirius IV. I shall continue to design that Ambassador by my own methods."

"And in your own image, it seems," I replied. "Mr. Phoenix, this iron Ambassador you're building seems to me altogether too disinterested, too mechanical. How will you build into him a trust in the organic goodwill of men?"

Phoenix sighed and shook his head. "Such spiritual vagaries can't be coded onto microtapes, Mr. Byng," he explained. "Won't it be enough that he's given all the resources of modern metamathematics to work with? Mr. Assistant Secretary, won't the whole texture

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of logic be enough to give him?" he pleaded.

Phoenix, I saw, was as dedicated to cybernetics as I, at his age, had been to the Foreign Service. I leafed through the report lying on my desk, a synopsis of the blueprints by which our iron Ambassador had been built. I was touched by this young engineer's enthusiasm. His was the coming sort in the State Department, the youth-with-a-slipstick; mine was the fading Old Order, obsolescent from the day our Ambassador to the Court of St. James had worn Bermuda shorts to present his credentials to H.M. Edward X. Not only trousers had become passé that day, but an era. My desk would soon be taken over by a cybernetician like Phoenix, or perhaps by a metamathematician, or an extrasolar xenologist. Diplomacy, the art to which I'd dedicated my life, was being shouldered aside by Diplomatics, a sort of bastard science bred out of Applied Logic by expediency.

Phoenix leaned over my desk, possibly thinking I'd forgotten he was there. "Wouldn't you like to see Joe Magarac, Mr. Byng?" he asked. He waited my decision like a hopeful spaniel.

I stood up. "Why, yes," I agreed. Phoenix's eagerness toward his project warmed me to him. There was more to this skinny boy than slide-rule intellect, after all. "Why do you call your machine Joe Magarac?" I asked as we stepped into the roof-bound elevator. "That's a Slavic name, isn't it?"

"It's the name of a legend," Phoenix said. "Anyway, Joe Magarac worked in some steelmill, way back before automation. Joe was seven feet tall, made of steel—he'd been born inside a mountain of iron ore." Phoenix studied my face to see whether I was laughing at his recital. "Magarac could fill his big hands with molten steel scooped up from the kettles and squeeze his fists to squirt four steel rails between the fingers of each hand. Joe Magarac was a giant, the ideal of steel and strength." Phoenix stopped, embarrassed. "That's why I gave his name to our Ambassador," he said.

"And it's a fine name," I said sternly, opening the door to our helicopter.

Phoenix piloting, we fluttered over Washington, out to Baruch Memorial Park. From the air I could see those twin rebukes to diplomacy, the Pentagon and Arlington Cemetery. Phoenix brought our copter down on a roped-off tennis court. We got out and walked across the grass toward Big Joe Magarac.

Our Ambassador to Sirius IV was an impressive artifact. It—he—stood five stories tall, nearly as high as the elevator-ship behind him, the ship that was to carry him on his mission to the Sirians

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at nearly the speed of light. The grounds of Baruch Park were thronged with tourists photographing one another posed at the feet of this modern Sphinx, with bevies of stenographers picnicking on peanuts on their afternoon off. Time was when an ambassadorial mission of this sort would have been a secret; but notions of secrecy were as fossil to modern Diplomatics as I myself.

Phoenix stopped. "Isn't he beautiful?" he demanded, craning his head back to stare up the sides of the machine he'd built.

"Indeed he is," I admitted. "But why couldn't the Department have given him the rank of a simple chargé d'affaires? It seems stultifying to make a mere machine Ambassador and Plenipotentiary."

Phoenix couldn't have been more hurt had I hit him. "A mere machine?" he asked. "Mr. Assistant Secretary, this steel Ambassador is the culmen of human ingenuity. It might be said that human thought has been gestating Joe Magarac for a thousand years."

"That might be said," I agreed sadly. "Might we see this prodigy closer up?"

"Come on," Phoenix said, waving an OK to the Park policemen. He ran interference for me through the chattering, peanutivorous crowd and lifted the guard-rope so that I wouldn't have to stoop to clear it. He walked across the grass to where the steel began.

By no criterion was Joe Magarac anthropomorphic. His thoughts, I knew, were the squeezings of electron-tubes. His body was a cone balanced on a dozen thin legs; his fingertips the hundreds of tactile cables that hung from the base of his coaxial spinal cord, twenty feet above us. Each of those squiddy tentacles, I'd been told, had a dozen eyes at its tip; each was studded with hundreds of tiny mouths to taste, hear, touch and geiger the Sirian environment. Walking through this sensitive jungle, I was grateful to know that the machine was unalive as yet, that Joe's tentacles couldn't taste out my hate for a brain independent of sentiment.

"He was modeled on the inhabitants of Sirius IV, as the automatic survey ships photographed them ten years ago," Phoenix said. "The Sirians will be more willing to communicate with a creature that looks like themselves, you see. Besides, no man could live on Sirius IV. The gravity, the storms, the chlorine made it unthinkable that we should send a human emissary there. So we're sending Big Joe Magarac, our steel Ambassador; something more than a man, something more than a Sirian, even. We'll impress them!" he grinned.

Phoenix helped me into one of the twin bucket seats hitched to Joe's coccyx and seated himself in the other. He triggered the motor,

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and we zoomed to the peak of the cone through the steel spinal canal, up to the little cubicle which would later be fitted with a radio transmitter. Unstrapping myself from the seat, I stood, feeling as inconsequential as a bloodcell in a giant's skull. Phoenix, though, was bubbling like a boy showing off his favorite toy to a visiting uncle. He flipped a switch to bring up the lights, another to bring Joe Magarac's mind to life. "The Ambassador's entire sensorium—sight, taste, smell, hearing, touch, radiation-consciousness—will be recorded on microtapes for playback analysis when he's returned to Earth," he explained. "His memory-banks contain all the information collected by the Automatic Survey Expedition to Sirius IV. He's been given a mental toolbox that will allow him to trim down every possible situation to its saliencies, and act then in the manner best conducive to his interests."

I stepped over what might have been Joe's third cranial nerve, a cable thick as my wrist. "I've always thought that an ambassador's interests were synonymous with his country's," I said.

Phoenix motioned for me to sit beside him on an outcropping of Magarac's braincase. "Mr. Secretary, do you realize how far away Sirius is?" he asked me.

"Some considerable distance," I hedged.

"Eight and eight-tenths light-years, Mr. Byng," Phoenix said triumphantly, as though I could be awed by any figure less than that of the National Debt. "In the time between Joe's sending us a question from Sirius IV and his getting our answer, there could be five different Presidents of the United States. Our national interest could have been modified by factors unforeseeable at the time the Ambassador left Earth. For this reason he's been planned to be a free agent, accountable only to the immutable requirements of logic. In essence, our Ambassador to Sirius IV is a dispassionate mind." Phoenix paused for breath.

"A dispassionate mind? Too bad," I said. "Joe will have to do without Duty, Honor, Country, won't he?" Phoenix shrugged, weary of my defense of the traditional virtues. "I'll leave that," I said. "How did you teach this machine geography, astrogation, things like that?"

"Mostly tape," Phoenix said, glad to be back on the solider ground of electronics. "We were able to force-feed him, too, using the skullcap." He stepped across the cubicle to pick up a metal bowl, from which dangled a length of cable. He set the bowl on his head, demonstrating. "When I'm wearing this, and it's plugged in, Joe can reach into my mind and pick out bits of information as he wants them," he said.

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"Like a little boy worrying the cherries out of a piece of fruitcake," I suggested.

Phoenix laughed at my unflattering simile. "In a way, that's it," he said. "I prefer to say that Joe uses my brain as a reference work. He can think better than I can, but I know things he doesn't."

"May I try the skullcap?" I asked.

"Sure." Phoenix took the metal bowl from his head and fitted it to mine. It was lighter than the helmet I'd worn in my Army days, and it had springs inside to finger it tight against my scalp. "May I talk to Joe?" I asked.

Phoenix squinted at me, trying to decide how much harm it could do his pupil to have a brain cell or two filled with my ancient clichés. "I guess so," he said. "Don't expect too much in the way of sensation, though. The feeling is more like a tickling in your sinuses than anything else." Taking me by the queue of cable, Phoenix backed me across the little room and fit the multipronged phone-jack into a socket in the Ambassador's brain.

It was a tickling, as Phoenix had described it, the feeling of a sneeze a-borning. The giant's fingers brailled over my brain, finding out what was written there. After just an instant the feeling stopped, as though Joe Magarac had discovered that my mind was a sort of child's exercise book, holding nothing worthy of his attention.

I closed my eyes, demanding that Joe see the things I'd want to know were I to be ambassador to an extrasolar world. Not just astronomy, but my notion of Mankind: a flea circus unworthy of its poets, an impudent farce blaspheming its gods. And yet, the vessel of a life-force that had spilled its vigor onto the other planets, that had stolen the fire of suns beyond its own. I thought of the hopes that had led me to join the Foreign Service of my country; and I felt Joe's fingers touch my brain again. I tried to float the pride and values of a lifetime to the surface of my mind, so that Joe Magarac could see them, could learn that an ambassador is more than an observer and a courier for courtesies.

"Enough for one session, Mr. Byng," Phoenix said, tugging the cable free from its socket in the wall. "Makes you want to sneeze your skull clear, doesn't it?"

I nodded. "A peculiar feeling," I said.

"To get on with our guided tour," Phoenix said, "Joe's mission is to inform the Sirians of our existence, if they've not deduced that already from the ships we set flying around their heads ten years back. He's to study the social organization of Sirius IV, determine the degree of scientific sophistication they enjoy, learn everything

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he can about them. After one year on their planet, he's to radio his report and follow it back, bringing his records for more painstaking analysis."

"You're giving him pretty much a carte blanche," I said.

"Mr. Byng, a carte blanche is the only possible passport for a logical machine. Can we impose conditions, when we hardly know what our Ambassador will find?"

"You may be right," I admitted. "And if you're wrong, it will have been a grand experiment, will it not? Now let's go outside to breathe unoiled air, Phoenix. I'll buy you a drink when we get back to the city."

The ceremonies took place two months later, on a crisp November day. The President was there, and three guests from the British Royal Family had come to lend grace to our pomp. Even a mandarin representing His Recent Majesty, the Emperor of China, was on hand, quick with smiles and cogent quips from the Analects. The massed Navy, Army, Air Force, Marine Corps, and Extraterrestrial Service bands hailed these notables with brassy anthems, the music streaming from their tubas and trombones into the chill air. A few snowflakes fell, skidding down Joe Magarac's slick sides to rest in a ring about his feet.

Our President touched the switch, a formal breathing-of-life into our Ambassador. The guns thundered nineteen times, and "The Star-Spangled Banner" burst forth as our steel Ambassador jerked to life and slithered into his levator, leaving a cleared circle in the snow to show where he'd stood. The ship trembled once, then rose so quickly it was simpler to think it had dissolved into the cold air.

Our boomerang had been hurled. I allowed myself no regrets, and scrupulously avoided discussing Joe Magarac with even Phoenix.

I'd discovered that, despite his exclusively technical training and his regrettable nickname ("Bitsy"), Phoenix was a sensible young man. Gradually I found myself relying on him as my liaison man with those crewcut Ph.D.'s who'd replaced so many of my friends retired from their State Department desks. I met Phoenix's wife, Dorothy; they met my son; and thus Phoenix and I became friends as well as colleagues. Never once did we discuss the knowledge that, somewhere in the immensities, Joe Magarac was hurtling toward contact with the first extrasolar intelligences men had discovered.

The players change places, even in this new game of Diplomatics. My "ten years' experience as Assistant Secretary for Extraterrestrial

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Affairs could not be allowed to go to waste in retirement"—I quote the Secretary, lest I be accused of immodesty—so I was appointed and confirmed as Ambassador to the Court of His Zenith, the Autarch of Mars. So near to home as this, I thought as I packed my bags, a human emissary was still sufficient.

Of course I took Phoenix with me, and Dorothy. She was a girl much like the one I'd loved and married: handsome, brunette, quick-witted; an infinite reservoir of tenderness. A woman to temper the thin cold winds of Mars for Phoenix.

We were to set up a Point IV Program with the Martians. I've negotiated with the Chinese, with Arabs, and even with Frenchmen from North Africa, God help me; but the green midgets of Mars were another kettle of snakes. Without Phoenix—and I admit this gladly—I'd have failed. He was always at my elbow to advise me on the minutiae of squeezing steel I-beams from red dust, of driving wells ten miles through basalt into the pockets of steam that would someday fall as rain on the sands, of building yet another pressure-dome for the human visitors to Mars.

I've never worked harder. I've never done more. I dealt directly with H. Z. the Autarch, a difficult being, jealous of his power as any Central American junta leader. I attended countless parades of sad green soldiers, participated in endless ceremonies as abstruse and pointless as the obsequies of Egypt in the days of the Farouks. But the wells got punched through the basalt, the steel got rolled from the dust, and the domes were built.

Our chief problems were social, brought on by the technological unemployment resulting from Phoenix's introduction of automatic factories to Mars. Those of the Autarch's slaves who couldn't be absorbed into H. Z's. Army, making his birthday parades even more interminable, loafed around the millyards. Phoenix set these unemployed to learning, of all things, chess. "I'm grooming a Green Hope to take the championship from the USSR," he explained to me. Watching the little blighters hunched sadly over their chessboards, I felt they'd have been happier back behind their clinker-carts.

But we had a lot to be grateful for, after our dozen years on Mars. H. Z. the Autarch had despite himself become a constitutional monarch, responsible to the newly formed Martian Congress. His slaves were freebeings now, and his Army had been pared down to the two divisions necessary for parades. Kink Rhinklav'n had been crowned the Interworld Chess Champion at the Tulsa Olympics. The four Phoenix children, none of whom had ever seen a rainbow, spoke Martian as casually as Eng-

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lish. When I looked over the growing oases of greenness on this rusty world, when I reviewed the good my country's wealth had reaped, I felt very much ready to sit on a parkbench tossing breadcrumbs to the pigeons.

The steel Ambassador had been gone eighteen years now. Even to an old man, that's a long, long time. When State ordered me and Phoenix back to Earth on a Crash Priority, calling a levator across the sun to take us, I'd nearly forgotten Big Joe Magarac.

Washington still looked ancient as Athens, new as tomorrow. Signs still interdicted rollerskating on the broad sidewalks in front of the Supreme Court building, proud sentries still marched and countermarched past the tomb of the Unknown Soldier, the State Department still reached across interstellar space from those pigeon-bedecked buildings it had been housed in when Earth's oceans were wide. It was good to be home again.

Then we saw the Secretary. I'd known him when he was Governor of Indiana, and was unprepared when he closed the door and jumped into his problem without so much as a verbal pledge to Old Times. "Alfred," he said, "you were Assistant Secretary for Extraterrestrial Affairs at the time our Ambassador to Sirius IV was designed, were you not?"

"You know I was, Bill," I said. "I was only Chief of Paperwork on that project, though. Any success of Joe Magarac reflects credit mostly on the technical competence of Mr. Phoenix here."

"I shall try to assign the credit fairly, Alfred," the Secretary said. "As you know, this mechanical ambassador was to remain on Sirius IV for one Earth-year, reporting to us by radio immediately after he'd started his journey home and before he'd attained maximum speed. He has done this. We got his message four months ago, which would make him due at Baruch Memorial Park in two months."

"What did he report, *sir?*" Phoenix asked.

"His transmission was stretched a bit out of shape, but the Bureau of Standards was able to reconstruct it," the Secretary answered. "It is, of course, Top Secret." I nodded, pleased to discover that not all diplomatic signals reached the press before they reached the President. "I have prepared a brief synopsis of our Ambassador's message," the Secretary said, picking up a single sheet of paper. He read it aloud:

"The Sirians are organized into several dozen moieties, or superfamilies. The Blue Star Moiety fills all public offices, is responsible for extra-Sirian affairs, and rules the planet. The Creeping-Thing Moiety controls the single saline

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spring where conjugation and mutual bilateral fission, the Sirian mode of reproduction, may take place."

Phoenix, nervously jiggling his slide rule, looked up. "They sound rather like certain plankton," he observed. "Can't reproduce in fresh water."

The Secretary nodded, and went on: *"The population of Sirius IV is held to about four billions by the fact that sex is futile outside this one saline spring. Although the average Sirian lives three thousand years, it is unlikely that this planet will ever become crowded."*

"Interesting," I said.

"Extremely," the Secretary agreed. "But there's more." He read again:

"Upon my arrival on Sirius IV, immediately I had learned the language I was feted and initiated as an honorary member of the Blue Star Moiety. Describing my home planet, I unwisely allowed my brothers to learn that Earth's surface is largely composed of a solution of saline, thirty-five parts per thousand, the optimum concentration for conjugation-fission among the Sirians.

"Eight million Sirians were immediately drafted to return with me to Earth, and Sirian industry spent the year at their disposal copying my levator. My honorary brothers have promised to occupy only the seas of Earth, which man uses very little, and will try not to raise the chlorine concentration of Earth's air so high as to kill the present inhabitants."

Phoenix rubbed his forehead. "I've seen the photos of the Sirians brought back by the automatic survey ships," he said. "We're in trouble, if we'll be competing with an intelligent monster that increases in numbers exponentially. If the Sirians get here, man will very soon be another sort of dinosaur."

I was thinking from another angle. I'd invited Joe Magarac into my mind, that day I'd worn the skullcap. I'd tried to show him the loyalties that can make patriotism refuge for a worthy man, not just a sham for scoundrels. Was it possible that, down in the deepest part of my personality, I'd actually wanted Ragnarok? Was Joe Magarac bringing giants to destroy the Earth because, in the midnight corners of my soul, I hated the race I belonged to? I sat silent, unable to speak.

The Secretary tapped his teeth with the point of a pencil, a nervous habit he'd had thirty years ago in Indianapolis. "Gentlemen, allow me to read you the last sentence of our Ambassador's transmission."

"What was it?" Phoenix asked.

"Dulce et decorum est pro patria mori," the Secretary said.

"What does that mean?" Phoenix asked. "Is it a countersign of some sort? A code?"

I shook myself free from my grim musings. "It's not a machine-

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code," I said. "It was a code for brave men, once."

Phoenix tapped his slide rule on his knee. "Joe Magarac didn't find any Latin inside my head," he said. "He must have swiped that from you, Mr. Byng, while you were wearing the skullcap."

"That may be," I admitted.

"All right. I'll concede the superiority of classical education if one of you two will tell me what that phrase means," Phoenix said.

"It's a line from Horace," I said. "'It is sweet and glorious to die for one's country.'"

Phoenix shook his head. "That's hardly an appropriate greeting to radio ahead, when he's bringing eight million monsters to occupy our world," he said.

"The motto is appropriate enough if you take into consideration a fact I've already mentioned," the Secretary said. "Joe's message was stretched, remember? More precisely, his broadcast was received at a much lower frequency than his transmitter had been adjusted to propagate. The Bureau of Standards technicians made an interesting deduction from that fact, Mr. Phoenix."

Phoenix let up on hammering his kneecap with his slide rule. "You say that his frequency dropped? That could be reddening. That's Doppler effect!" Phoenix was on his feet now.

The Secretary nodded. "At the time our Ambassador sent his message, his velocity was about one percent of *c*, or light-speed. He must have accelerated to maximum, about point nine eight *c*, shortly after he signaled us. The important thing, Mr. Phoenix, is that your Big Joe Magarac is going *the other way*. He's running those eight million Sirian giants away from us on a cosmic snipe-hunt, making sure they'll never reach the Earth he came from."

"So that line of Latin," I said, more moved than I cared to admit, "is Joe Magarac's epitaph."

The Secretary tapped his teeth with his pencil. "I hardly think he means it that way," he said. "I think he applied the motto to his companions, who will die three thousand years from now, somewhere between Sirius and infinity. Your . . . ah, disciple will be home again, Alfred. He'll get back to Earth the way Magellan proposed to get back to Seville. The long way, Mr. Phoenix."

Phoenix grabbed up his slide rule and made a rapid calculation. "If Magarac travels at ninety-eight percent of the speed of light, and the radius of the universe is five point eight billion light-years," the slipstick clicked, "he should be home in just over sixty billion years."

I refrained from pointing out that I had reached the same approximation several seconds before Phoenix had finished his calculating, as could any child with a

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sufficiently old-fashioned education. Because a slide rule can perform operations beyond the scope of the unaided human brain, we need not conclude that it can better us at our own limited functions. But the point hardly required stressing at this juncture.

"Bill," I suggested to the Secretary, "is there anything drinkable concealed in that multicontrol desk of yours? I believe a toast is in order to our Ambassador At Large."

Through Time and Space With Ferdinand Feghoot

Ferdinand Feghoot explored the system of the star τ-Turista during the Third Franco-Mexican Empire. The expedition was sponsored by His Cosmic Majesty Maximiliano Ixtlhuatl XXII, who decreed patriotically that only Mexican food might be served aboard ship.

In 3002, Feghoot returned, and was ushered directly into the Presence.

"What did you find " asked the Emperor.

"Sire," replied Feghoot, "most marvelous of all are our Ixixixangos." He pointed to a couple of creatures who looked like vitrified anteaters and clanked when they walked. "All other life-forms are either carbon *or* silicon based. Only the Ixixixango has a chemistry based upon *both*, and requires both for its substance."

"You mean they can't eat what everyone eats?"

"No indeed. We fed them ground glass and meat."

"*Ha!*" cried the Emperor. "So *that's* how you follow my orders, Fernando Feghoot. Ground-glass-and-meat isn't Mexican food!"

"It is too!" said Feghoot. "It's silicon carne."

GRENDEL BRIARTON

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If you are not aware of the fact that we are now in the thick of the football season, you might as well skip ahead to page 82; for this is an esoteric and specialized story, meaningful only to the limited audience (at a guess, around fifty million) which enjoys American football. The Saturday after this magazine comes out, the University of California plays Michigan State; and personally, as a loyal Cal alumnus, I dare not look beyond that terrifying afternoon. But Colin Sturgis, an equally staunch supporter of the Blue and Gold, ventures to scry into the interplanetary future when Cal will represent Earth in the Solar Bowl on Mars, where an alien gravity can affect everything save the basic rules of the game (and the basic plot of sports fiction).

Conversion Factor

by COLIN STURGIS

THE THIRTY-FOOT CLOCK ON THE north end of the stadium read but fifteen seconds to play, the Bears were trailing 13-7, and Cameron automatically called for a time out.

"Now why did you do that?" complained Washington, the Bear left halfback. "We had this sequence of plays doped out. Those guys are murder if you give them a chance to get set."

Cameron ignored the complaint and plopped wearily on the grass. Floated would have been a better description. The light Martian gravity was a tricky thing. He still hadn't become accustomed to the slowness of the fall after being tackled.

However, the law of compensation worked quite nicely on Mars. What was a major handicap to Cameron was enabling three long-limbed girls to perform some amazing gyrations in front of the jubilant Hanford rooting section. And although it was another blow to an already dejected ego, Cameron couldn't help watching.

The girls had cleverly woven bits of lead into the hems of their short circular skirts. As they rotated in the air, their skirts rose and fell in the light gravity and

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gave the illusion of bathing beauties waist deep in technicolor waves.

But Cameron was watching the girl in the center. Her name was Peggy Jenkins, and as official hostess she had been at the space port to welcome the arriving Earth team. She was cute and redhaired, with chinaberry eyes and a porcelain smile. Cameron was smitten at a glance. But what chance he had of even a beginning courtship was penalized right off the bat.

In his eagerness to get a better look at Peggy, he slipped—and his efforts to regain a balance in the unaccustomed light gravity resulted in a leap more like a kangaroo than a fleet-footed All-American. The alert Martian photogs had seen that the ludicrous picture received proper circulation in the sports pages. Cameron would have traded his facsimile Marilyn Monroe calendar for a chance to ask her to the post-game dance, but unless he could live down the publicity, his chances were as slim as an Earth victory.

Washington was not in love. He brought Cameron back to the job at hand with a well-placed quadrangle of cleats. "Well, what's your idea?" he demanded.

Until that moment Cameron hadn't really had an idea, but now he felt one coming. "We still have a chance," he said grimly. "There's time for one more play. We'll try a down-and-out pass."

"But we've only completed one pass all afternoon," reminded the right half, Robinson.

"So much the better," Cameron snapped. "They won't be expecting us to complete one now."

"No—but they *still* might be expecting one." Jensen, the fullback, ran stubby fingers through his close-cropped blond hair and watched the Hanford University players in their defensive huddle. "They don't look any bigger than us," he mused sadly.

"That's the hell of it," Cameron said flatly. "We outweigh them, and we're supposed to be as good. Only the old Mars Jinx is at work, and we've let them push us all over the pasture."

"*Let* them!" Jensen echoed. "Have you been hit by that left guard? That guy must be solid bone right down to his spine."

Washington grinned caustically. "It's a little matter of compensation. The ecologists explain it neatly, only it never gets into the sports pages. Under conditions of lighter gravity, transplanted Earthmen lose part of their muscular power and become taller, or retain their muscular power and become more solid. Unfortunately for us, the Martian colonists got solider."

"Yeah, that's true," agreed Modjewski, the third-string right guard.

"Speaking of which, where the hell were you on that last play, Brain, when you missed your

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downfield blocking assignment?" asked the quarterback.

"Aw, I'm sorry, Cameron," replied the guard. "I was figuring how many copters there'd be in the parking lot if this stadium was sixty-nine percent full, and there was an average of three point four attendees per copter."

Cameron shook his head. It was a damn shame he was stuck with a third-stringer in the crucial closing seconds of play, but the substitution rules wouldn't allow a replacement. Brain Modjewski could be their best guard: he was big and amiable, but smart. And he was one of those lunkheads who really want to play football, only he unfortunately thought the locus of a punt much more beautiful than the punt itself and was apt to go into a brown study at crucial times. But what else could you expect from a man attending the University on a non-athletic math scholarship?

Even at such a dark moment as this, Jensen couldn't refrain from baiting him. "Hey, Brain, you can prove their tackling doesn't hurt, can't you? Doesn't a man hit the ground easier up here?"

Modjewski grinned widely. "Aw, sure, Jensen. Lessee, now. You weigh two ten. On Earth you'd hit roughly at four twenty foot-pounds, assuming a *g* of thirty-two point one seven four feet per second squared. Here it's only one fifty-nine point six foot-pounds, assuming a Martian *g* of only twelve point two two six feet per second squared. You see—"

"In that case," Cameron interrupted, "you won't have any trouble with your assignment. This play makes us or breaks us." *And me too,* he thought moodily, as he stole a glance at the seemingly indefatigable Peggy still hanging suspended in the air. Suddenly he steeled his resolution. On Earth he was known as "The Come-Through Kid." On Mars could he do less?

"Jensen!" he snapped. "We're going to pull a fake fullback delay. Brain, you take out that damned tackle if it hospitalizes you. Washington and Robinson, loaf on your way downfield; remember, it takes a hell of a long time for the ball to come down. Left end, right end—down and out. The rest of you guys, charge! *Let's go!*"

The Bears were picked up by the quarterback's enthusiasm. They huddled quickly, then streamed to the line of scrimmage, while the Hanford Braves found their defensive positions and dug in. The referee placed his foot on the ball and raised his hand. Across the way, the electronically amplified music of the University of California band made one more last impassioned plea for "The Sturdy Golden Bear." The referee blew his whistle, and the second hand on the huge stadium clock

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began its frustrating race toward the final zero.

Up in the stands, that portion of the capacity 259,849 spectators who were filing toward the escalators paused to witness this last play of a game which hadn't quite lived up to expectations. Perhaps a dull game was a natural between two such strong teams.

On Earth, the California team had emerged undefeated from the most murderous schedule in its history, and was hailed as the best collegiate aggregation in years. On Mars, Hanford was also undefeated in a ten-game schedule, and was considered the best Martian team ever assembled.

Earth—after fifteen years—was still looking for its first victory in the huge Solar Bowl; most sports experts agreed this Bear team had a better chance than any of its Terran predecessors, but it still wasn't much of a chance. The teams were very evenly matched, except in the matter of gravity. Still, both teams had had their moments of glory, and both had made their mistakes. Up to this point, Hanford had made the fewest.

Cameron was trying desperately to remedy this situation. He took the ball from his center, faked right and left, faked to Jensen, and then floated slowly out to the right flank. The play was a demonstration of the wizardry that had made Cameron unanimous All-American. The strong side of the defensive line pulled in to stop Jensen. But Cameron kept his back to the line of scrimmage, then turned suddenly to spot his downfield receivers. The Brave left end belatedly realized his mistake and raced in from his defensive position.

Cameron saw him coming at the last instant, and cut back quickly to find maneuvering room. He groaned as his muscles overcompensated in the light gravity. On Earth the quarterback stood six feet even and weighed 180 pounds; here, still six feet, he weighed 68. His mind knew he was playing under 38% Earth gravity; his legs forgot.

He realized he was falling, but so slowly he had plenty of time to get the pass away. Seeing the pass-pattern his receivers were running, he decided to chance the left end.

It was like throwing a toy balloon. The ball shot from his hand and then lurched jerkily almost straight up before settling into a steep parabola. Cameron hit the turf lightly, bounced, then pushed himself to his feet. The sharp crack of the timekeeper's pistol sounded the end of the game—but no game is over till its final play is completed.

Downfield, the Bears were committed. The pass was beautifully thrown, even for Mars; it was going to be shoulder high and

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about a foot inside the end zone. It took so long to get there, however, it was also going to be impossible for a Bear to get behind the defenders, which was one reason the long pass wasn't an integral part of Mars football.

The Bear end realized this and suddenly gambled everything with a last minute answer. At the last possible second he raced from the goal line and leaped high into the air, the defensive back only a step behind. The Hanford man didn't jump, for they were well inside the ten yard line; one clean, hard tackle and the game was over. The end grasped the ball with his big hands while the Hanford man began his tackle.

The tableau held for a long moment; then, almost lazily it seemed, the receiver turned in the air and made a perfect basketball push-shot toward the sidelines. The ball floated free, and a huge groan emanated from the California side of the field. The Hanford section broke into a river of color, and with whoops of joy poured from the stands.

However, this time the light gravity paid off for the Earth team.

The spectators in the stands—through the perfectly proportioned electronic magnifying screens that made seating in the huge stadium possible—and televiewers on Earth, Moonbase, and Mars saw what seemed to be certain defeat for the valiant Earth team turned into the Hanford mistake that evened the score. The Hanford back learned too late that he should have jumped for the ball.

Robinson, the little scatback of the Bears, who had loafed on the thirty in an effort to draw the defense loose, realized what his left end had in mind and suddenly sprinted superhumanly down the sidelines. Scooping up the ball at shoetop level, he plunged unbalanced, twisting and turning, into the end zone at full speed. He bounced hard against the retaining wire which the Hanford financial committee had had the foresight to install to keep from losing so many balls. He spoingged hard back into the end zone—but he still held the ball!

There was a momentary confusion as the head linesman (Marsport, '96) automatically blew his whistle and raced over to the point where Robinson had made the catch. But the referee (UCLA, '94) had been on top of the play. After a brief consultation which consisted of much arm waving, he raised his hands, allowing the score.

Pandemonium raced through the California side of the field. They had tied it up! Incredible, but they'd tied it up 13-13—and though time had run out, there was still a chance to win; for the try for the one-point conversion occurs outside of time. "Go! Go!

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Go!" the yell rolled like a gathering storm. "Go! Go! Go!"

But the Bears stood around helplessly as the Hanford rooters —not sure of what had happened, but trying to get a chunk of the goal posts just in case—jammed the end zone solid. The stadium police finally succeeded in clearing the field and a great silence descended over the huge bowl.

The Bears, in one improvised play, had almost vindicated the bitter defeats suffered by the previous Earth teams. Almost, but not quite. They had the moral victory. They had achieved the impossible. But this, of course, was not enough. They had to taste the fruits of victory. They had to go for broke.

Cameron stole a glance at the Hanford yell queen on the far sidelines. Somehow, he knew she was watching him, too. In the three-weeks he had been on Mars, he had seen Peggy often enough to recognize the empathy that existed like an electric spark across 48 million miles of space. They were made for each other, but unless he could somehow win this game he knew he could never face her. That had to be his proof of worthiness.

The one point that stood in the way was monumental. In the long series of the Solar Bowl, no Earth team had ever kicked a conversion. The all important extra point after today's first touchdown had been achieved by a beautiful fake pitchout and a line buck. But the fighting mad Hanford team would be waiting for that one, and any kind of a pass play would have even less of a chance.

A kick was the only answer, but Martian gravity did things to kickers who weren't used to it. The ball skittered to the left or right. It went straight up, or it bounded crazily a foot or so above the ground. And yet, somehow, Cameron had to kick that elusive conversion.

Cameron the Incredible, the sports-writers called him. The man with the automatic toe who never missed a field goal when the ball was kicked from within the forty-yard line, who hadn't missed a conversion in twenty-three games—but who, since coming to Mars, hadn't even been able to punt successfully. He knew he could never kick the extra point; worse, all Earth certainly expected him to.

At the present, he was a hero in shining shoulder pads; in twenty-five seconds he would be the goat in a tarnished gold jersey. But he damn well knew he had to try it.

In the huddle Cameron said wooden-facedly, "I'll kick it."

"Are you nuts?" Jensen said.

"Would you care to plow into that line of beef?" Cameron asked grimly.

Jensen shuddered at the thought. "There goes the old ball game," he said sadly.

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The sudden screech of the whistle startled them, and the referee marched off five yards for too much time in the huddle. The Hanford side suddenly came to life, and across the greensward came the pleading sound of the yell the Big Red reserved for only the direst of occasions. The Solar Bowl had never heard it in fifteen years: *Give 'em—the sack! . . . the sack! . . . the sack! . . .*

"I wish I had this ball on the thirty-six yard line on Earth," Cameron growled, looking at the goal posts squatting pro-like on the goal line, where the rules changes of '84 had restored them. "I never missed one from the thirty-six in my life."

"Aw, gee, Cameron," Brain Modjewski said sympathetically. "It's too bad you can't use the correction factor I figured out while we were making that touchdown."

"What do you mean?" Cameron demanded suspiciously.

"Aw, it's not much," Modjewski returned sheepishly. He knew Cameron would be mad because he had missed an assignment again, but he told him anyway. For a moment the whole team stood silent; then, with whoops of joy, they huddled around the Brain.

The referee gave another sharp blast of the whistle, and marched off the inevitable five yards. Screams of anguish rose from the California rooters, but the Bears only beamed happily and gamboled back into their huddle. And in the next few minutes the 259,849 spectators were treated to the strange sight of a Golden Bear team that raced out of the huddle—only to stand at the line of scrimmage like the Front Range of the Rockies: unmoving.

On the fourth penalty, the referee exasperatedly assessed fifteen yards for flagrant delay of the game and very pointedly placed the ball on the Hanford thirty-two yard line.

Confusion was rampant, and cat-calls and boos much in evidence on the California side; uncertainty plain in the Martian team and stands. Still the Bears boiled from the huddle—only to stand as silent as the soft Martian hills under the watermelon clouds.

The referee gave them what seemed the coup de grâce: half the distance to their goal line. The Bears grinned as if they had had a sudden stroke of unexpected luck.

On the sidelines, the Bear coach, who had been pacing and growling like the team's namesake, had enough. He waved a substitute quarterback from the bench, but the referee waved him back immediately. He was mad at the whole California delegation. "You can't substitute after a game is over," he bawled. Then he walked grimly over to Cameron.

"I don't know what you're trying to pull," he warned. "But this

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is the last time. If you don't get that ball in play within twenty-five seconds after the whistle blows, I'll forfeit the game." He placed the ball on the Bear seventeen, again half the distance to the goal line, and angrily waited until the Hanford defense had lined up in the new position.

The Bears didn't even go into a huddle. Robinson knelt carefully on the five with outstretched arms, Washington and Jensen flanking him like blocks of granite. Cameron stepped into his own end zone and waited for the ball to be snapped. The field announcer's incredulous voice informed the crowd that the Bears would attempt the conversion from their own five yard line, 95 yards from the goal posts, some fifteen minutes after the game was officially over. And the most die-hard Earth rooter would have gladly boiled Cameron in oil at that moment.

Cameron took his time. The ball was snapped and placed and he made his characteristic choppy run. His toe met the ball with a thunk heard around the television network, and a great collective sigh drifted from the stands. The pigskin took on a life of its own, a crazy, erratic, hebephrenic life. Upward it sailed, spurting as toothpaste from a tube.

The teams whirled with the kick and raced toward the Hanford goal posts to see the results for themselves. Except Cameron. He trotted quickly toward the Hanford stands.

Peggy was waiting on the sidelines, as he knew she'd be. Only now he could face her. The ball hadn't yet started its downward flight—of all the 259,849 pairs of eyes in the stadium, perhaps theirs were the only ones not watching—but he knew the game was won. Now he could take her to the dance!

Yelling began to resound as the ball approached the end of its path. It was going to be deceptively close; Cameron gently took Peggy into his arms. "You're wonderful," she whispered, just before he kissed her.

The yelling rose to a frenetic crescendo, and then exploded as the ball dropped six inches and dead center behind the cross bar. Cameron didn't even notice.

The news flashed around the System. Mars *could* be had. Earth finally won it. Never again would the Solar Bowl be the exclusive province of the smug Martian Conference. The football-card betting pools took a new lease on life, and Cameron could have been elected simultaneously to the Rotary, Elks, Eagles, and the National Junior Chamber of Commerce.

It wasn't until they had sat out their third dance that he got around to telling Peggy that it was really Modjewski who had come through and saved the day. Cameron was gracious in victory.

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"Why were you so sure the conversion would be good?" Peggy whispered dreamily.

"Because of Modjewski," Cameron grinned. "A lot of the guys kid poor Brain because he had to get into school on a math scholarship, but sometimes he has a good idea. Like today. You see, the reason I couldn't kick conversions is because Martian gravity is only thirty-eight percent that of Earth. In order for me to control my kick, I'd have to modify the force behind it, and naturally I can't judge any given percentage of my normal force.

"After I did part of the work by letting him know that any time I can get the kicking tee square on the thirty-six yard line and kick as hard as I can, I never miss—the rest was easy. All Brain had to do was take into consideration the Martian gravity, interpolate it into the fundamental thrust equation defining the trajectory of a known mass in a constantly decelerating condition from an original applied force, and the conversion factor practically leaps out at you.

"As soon as I learned the conversion factor was two point six three, I knew I had solved the problem. Multiply that by thirty-six and you get ninety-four point six eight yards. All I had to do was get the team penalized back to where I could kick from the ninety-five yard line—our own five—and the tie-breaking extra point was in our pocket."

"You're so clever," Peggy agreed.

Cameron smiled down at her. It was certainly in the best All-American tradition that he should win both the game and the girl. Although there *was* the happy expectancy that on their honeymoon this 41-pound fluff of a girl would probably throw him for a loss.

Incredibly, this was not the longest scoring kick of Cameron's career. For details of his later triumph, watch for The 24,000-Mile Field Goal *two months from now, in our January issue.*

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The Science Stage

by WILLIAM MORRISON

THE NEW SEASON HAS ONLY JUST got started on Broadway (for Broadway's year, unlike other chronologies, runs from September through May); and its science fiction and fantasy ventures, if any, must be covered here in later issues. But three of last season's fantasies, which survived the heat and drought of summer and are doubtless still playing when this appears, deserve some notice: two musicals which opened before this column was born, and VISIT TO A SMALL PLANET, already delightedly reviewed here (May, 1957) but worth further consideration because of an important change in cast—and because it was the only one of last season's several science fiction plays to score a success.

The two musical comedies, DAMN YANKEES and LI'L ABNER, are in one respect realistic enough. They follow the tradition of all musicals in that whatever other elements go into their construction, the bricks of the house, if you will allow so prosaic a figure of speech, are girls ranging from pretty through beautiful to spectacular. Without well-exposed eye-filling females, there is no hope.

At the present stage, LI'L ABNER has the advantage on this score. In addition to its chorus which includes some major assets, DAMN YANKEES has Devra Korwin, the latest of the Devil's Lolas. LI'L ABNER has not only Edith Adams, who is both talented and beautiful, but Julie Newmar and Tina Louise, both of whom have to be seen to be believed, and even then are not quite credible.

Enough, for the moment, of sex. DAMN YANKEES is a story of baseball, and relates the saga of a middle-aged fan who sells his soul to the usual purchaser to become a homer-hitting young fielder. As a player ages, his legs are supposed to go first. This is apparently not true about baseball comedies. After two years of performance, the dancing in DAMN YANKEES is lively and vigorous, although not the best in the world. Nor is the music, in my opinion, first class, despite the success of such numbers as *Heart* and *Whatever Lola Wants*. The one element in the show that

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gives it outstanding quality is its fantasy. That pact with the Devil opens the door to many amusing possibilities, and the show takes reasonably good advantage of them. It is the Devil who has made DAMN YANKEES a hit.

I am afraid, however, that all his infernal powers will not keep it running much longer. Gwen Verdon, the original Lola, has long been replaced, and her replacement has been replaced. Devra Korwin, the present temptress, should be enough for any man, and frankly I cannot understand how the red-blooded young hero can resist her. If I were to make a pact with the Devil, I should hardly follow his uninspired example, and let my wife make of this what she will. But there have been other cast changes as well, and the production has been moved from one theatre to another, and somewhere during all the changes, the show has lost some of its soul. The hero may finally outwit his sinister opponent, but DAMN YANKEES itself appears doomed, at least until it is resurrected in the movies.

LI'L ABNER is in a different position. Still less than a year old, it continues to rejoice in the presence of the outstanding females who were responsible for much early publicity. It has a clever book, such lively comedians as Stubby Kaye and Charlotte Rae, fine choreography by Michael Kidd, a perfect Li'l Abner in Peter Palmer, Edith Adams as Daisy Mae, and above all the spirit and the characters of Al Capp's comic strip. With memories of BLONDIE in mind, I found it difficult at first to believe that a show based on a comic strip could rise above the level of a six-year-old TV audience's comprehension. I am happy to admit that I was wrong. Like a team of well drilled football players, the LI'L ABNER company hits the opposition high and low at the same time and mows them down.

An occasional stuffy objection has been raised to the plot's treatment of the possible disaster to Dogpatch. There is danger that Abner's home town may be wiped out by an atomic bomb, and the objectors do not consider this a trivial or amusing event. As the book treats it, there *is* amusement. But is the subject treated as trivial? The whole point of the show is that the atomic bomb is too serious a danger to be treated with evident seriousness (recall Arch Oboler's lugubrious disaster with NIGHT OF THE AUK, for instance). It is so serious, in fact, that the authors dared not treat it in any but an apparently frivolous way. And the combination of world-shaking subject with light, irreverent, witty lines and action makes for continuous sparkle and crackle throughout two fine acts.

VISIT TO A SMALL PLANET, revisited, is almost as amusing as

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when I first saw it. The difference, I am afraid, is my own fault. For almost two acts I could not help retaining a memory of Eddie Mayehoff, who made of General Tom Powers a character of cosmic idiocy. Edward Andrews, who now plays the role, is fine, but he plays the General as stupid rather than idiotic (if you will permit me these fine distinctions in mental deficiency), and as an individual somehow deserving of sympathy. It took him two acts to wipe the recollections of Mr. Mayehoff out of my mind, and to make me appreciate his performance on its own merits. If you see the play without my initial disadvantage, you will find it wholly enjoyable.

The play itself and the rest of the cast are as good as ever. Cyril Ritchard has received praise enough for his portrayal of the Visitor, but I cannot help adding another word. His acting is so beautifully stylized, his control of voice, facial expression, and gesture is so perfect, that you could very well imagine he received his training on another planet. His talents rise to their highest level in that wonderfully absurd scene where, with song and slogan, he tries to provide the psychological stimuli to change a prudent pacifist into a reckless warrior. The memory of his failure and unexpected success is something to treasure.

Of the other fantastic and science fictional offerings of the season, you may recall that GOOD AS GOLD was smacked down, unfairly, it seemed to me, and SHINBONE ALLEY closed after a bitter struggle for life.

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It's an odd and possibly significant fact that science fiction writers are, by and large, cat-people. Mack Reynolds and Fredric Brown are the only dog-men who come to mind in the profession; but there are dozens of us who live with cats and write about cats. Dogs have inspired only a handful of s.f. stories (although the handful includes such masterpieces, I must admit, as Simak's CITY *and Stapledon's* SIRIUS*); cats appear so often that the spaceship's cat has become as much a commonplace of the future as hyperdrives or timewarps. I cannot recall that anyone has yet written of a spaceship's dog . . . and yet there is a good reason why this story of a space-voyaging cat is called*

Fido

by GORDON R. DICKSON

THE TROUBLE BEGAN, PROPHETICally enough, with the cat. The Ship's Exploratory Team, S.S. *MacGruder,* had been on K Planet for several weeks; and at that particular moment Jim Allinson, Engineer, and Tobe Craine, Astro, were settled in the ship's lab, classifying some soil samples. Buster strolled in, lean tail in the air and looking no different than he had for the past few years. The men, busy with the soil samples, ignored him.

"Meeeilk," said Buster.

Allinson was too occupied to look up; but Craine glanced at the cat briefly, then across the table at his friend and fellow officer.

"Not bad," he said.

"Hum?" said Allinson, searching for some litmus paper.

"I said, Not bad. What've you been doing, practicing behind our backs for the past few weeks?"

"What?" demanded Allinson, semi-irritably, looking up at last. Craine gestured at the cat.

"The gag. Don't play innocent with me after all these months. I'm not complaining. It's a good trick. When did you work it up?"

"What're you talking about?"

"Meeilk," repeated Buster.

"That. The ventriloquy," said Craine. Allinson stared at him. He was a big, large-muscled young man with the open countenance of a village blacksmith, and he could

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stare most effectively, whether innocent or otherwise. This time, his look of puzzlement slowly cleared.

"Oh, I get it," he said. "Accusing me to smoke-screen your own little game."

"Oh, stop trying to kid me," said Craine disgustedly. "It's a good trick, but why don't you let it go at that? I know you're making Buster talk. Fine. Now go try it on someone else—like Kim."

"I am not making him talk," said Allinson, slowly and distinctly. "But *you* are."

They stared at each other. Craine turned to Buster.

"You don't want milk," he said. "How about some fish?"

"Naow," said Buster. "Meeilk!"

Craine looked back at Allinson.

"Did you say that?" he demanded. "Tell me the truth, now."

"No," said Allinson. "Did you?"

"No," said Craine.

They moved suddenly and explosively across the lab toward the red General Alarm button as one man. Craine, possibly because he was smaller, more limber, and conceivably because he was redhaired, got to it first. Actually, the question of who, in fact, pushed the button, remains an academic one. The button was there to be pushed according to regulations. To push it was the order.

It was their duty. And they did it. One *must* admire that simple fact.

A few million miles of deep space off from Planet K, the S.S. *MacGruder* halted its emergency flight and both the scientific and the Space Service boards on the ship met in joint session. This was simplified by the fact that the personnel of both boards was the same. Allinson, for example, who was Engineer on the one board, was Biologist on the other—just as Craine was Geologist as well as Astro.

"Now," said Kim Schute, Captain-Psychologist, as they all settled around the long table in the *MacGruder's* main room. "Who's got Buster?"

Doctor-Communicator Ian Navarre lifted the cat gently from his lap and tried to persuade Buster to lie down on the table top.

"Naow," said Buster.

"Please," said Navarre.

To everybody's surprise, Buster lay down.

"Is that *our* Buster?" said Mbogi Feister, lifting his lean eyebrows up on his bony skull. Nobody laughed.

"The meeting will come to order," said Schute sharply. "Recorder on?"

"My recorders are always on," said Feister. Schute looked at him.

"I know that," he said. "I was talking about a priority tape on this session so that anyone investigating . . . later won't have to hunt through six months of recordings to find it."

"Naturally," said Feister.

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"Airy wings of thought," murmured Allinson. Feister looked sharply at the big Engineer-Biologist, but Allinson's gaze was abstracted.

"Well, to business." said Schute. "One of you two state what happened."

"Buster came in and started talking Basic," said Craine. "In accordance with regulations, when encountering the violently unexpected on a strange world, we punched a General Alarm for all of you, and headed off-world immediately."

"Very good," said Schute, rubbing his forehead slightly. He was still a young man, but a certain heaviness of body and authority gave him a tense, driving look. "Were any of the rest of you outside when the alarm sounded—for the record?"

"I was," said Feister. "I was checking the precipitation gauge. And all I can say is, if the rest of you think it's a snap being recorder and meteorologist at the same time—"

"We can dispense with the humor, Fy!" said Schute. "This is a Manual emergency, and we're operating under the directions laid down to protect Earth from infection by unknown elements. If we turn out to be infected, we may have to decide between self-destruction and permanent exile from Earth—hardly a laughing matter."

"A talking cat isn't a laughing matter?"

"Not when he talks the way this one does," said Craine. "Say something, Buster."

Buster regarded Craine with sleepy eyes, purring to himself. He was lying contentedly on the table with his paws crossed.

"That's no good," said Navarre. "What would *you* say if somebody asked you to say something? You'd answer back: 'Say what?'" He turned to the cat. "Do you feel all right, Buster?"

"Myes," said the cat.

"When did you find out you could talk?"

Buster purred loudly.

"Ask it another way," snapped Schute. "Try again!"

"Naow," said Buster unexpectedly. "Eeets arrright. Iee knaow whaat yeeouu meean."

"What happened to you?" cried Schute.

"Iee daown't knaow."

"This," exploded Feister, suddenly, "is a gag! Somebody's pulling a trick on all of us!" He whirled on Allinson. "Do you know what it would take to make that animal talk? Nothing less than a human head complete with brains, speech center, and vocal cords."

"Not necessarily," said Navarre.

"Not—?"

"All the three things you mentioned are things we *think* are necessary to human speech or its

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equivalent. *Brains* is simply another word for intelligence—and that, in Buster's case, obviously has changed, though the size and shape of his head hasn't. The so-called speech center is merely an area we know about which, when damaged, can cause aphasia—negative evidence. And as for vocal cords, human style, what about various birds such as parrots, crows, etcetera?"

"What does that prove?" demanded Feister.

"Nothing," said Navarre. "It *indicates*, in connection with the obvious fact of Buster, that we might have been wrong in some of our notions concerning human-type speech." Navarre smiled ingenuously at him.

They all stared at Buster. Buster purred.

"All right," said Schute, "let's get back to it. The obvious fact is Buster's speech ability. The important fact is his intelligence. While we were on our way out here, after I'd got clear of the atmosphere and turned the ship over to omnicontrol, I tried for a rough check on Buster in this direction. He can't read or write, of course, so the ordinary tests were out of the question. But his environment is similar enough to ours so that a rough guess was possible."

"Which was what?" asked Craine.

Schute hesitated. They all watched him.

"Well, allowing for the fact that Buster didn't exactly knock himself out to help me—he reacts like a completely untutored twenty-year old human of perhaps a hundred and twenty I.Q."

"You're the psychologist," grunted Feister.

"That's right," said Schute, looking him in the eye. "I am the psychologist. *And* the Captain."

"Then we're left," said Navarre, "with the question of where did he get it? His intelligence, I mean."

"Yes," said Schute slowly. "Well, any suggestions? Fy? Doc? Tobe? Allinson? . . . *All!*" Schute, going around the table, stopped suddenly before the Engineer-Biologist. Allinson was staring vacantly off into space, his lips silently moving. "Al, this is no time to daydream!"

"Huh? Prithee pardon me," said Allinson, coming back to the present. "What was the question?"

"Where did Buster get his intelligence?" snapped Feister.

"Huh? Oh, that's simple enough," said Allinson calmly. "You remember what we ran into below there, don't you?"

The others stared at him. "Nothing," said Craine, at last.

"Exactly," said Allinson. "No life at all. A pleasant little almost Earth-like planet—little high in nitrogen in the atmosphere—but completely sterile. Fossils aplenty up to the vertebrate level, but that's all."

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"Well, what about it?" This from Feister.

"Suppose a free intelligence floating around like a virus. The lower orders of a young planet catch sick and die. Buster, being higher up the evolutionary scale, has a greater tolerance. The sickness merely beefed him up." He stood up. "The universe's a stage, and all of us, even including Buster, but players on it—paraphrase. I'm going to lie down. See you all later."

He walked out of the room. The rest stared after him and at each other.

"What the devil?" said Feister.

"It makes sense, though," said Navarre, frowning.

"Yes," said Craine. "But how come Al came up with it like that?"

At the head of the table, Schute nodded again. "I was thinking the same thing." He stood up himself. "Pending further developments, we'll head back to the solar system and report for Quarantine as soon as we're within communications range. I'm going to have a little talk with Al. Come on with me, Doc."

The meeting broke up.

"—well, Doc?" asked Craine, later, looking up from the Planet K rock sample he had been examining under enlargement. Navarre perched his lean frame on the edge of the sink in Craine's personal lab and stroked his chin wryly. His long, rather kindly face was drawn into lines of concern.

"I examined Al," he said. "No sign of anything. Temperature, pressure—everything normal as eggs. Something's wrong, though."

"How do you mean?"

Doc reached for the pencil lying by Craine's enlarger. He twirled it thoughtfully between the thumb and forefinger of his right hand.

"Did you ever know Al to be particularly interested in poetry?" he asked.

"He said he used to diddle with it in college," answered Craine. "He started as an Arts student and then switched."

"Well, his interest seems to have been revived. He's lying on his bunk back there quoting to himself. With considerable fluency, I might add. I always liked poetry myself and I could check some of his shored fragments with my own memory."

"You think he's got it . . . whatever it is?" asked Craine.

Navarre shrugged.

"Buster turns intelligent. Al starts to quote poetry. No startling connection between the two—except that they're both abnormal behavior."

"In Buster's case that's the understatement of the eon. Where is *he*, anyhow?"

"Sleeping. In the galley—locked in. He doesn't seem to mind," said Navarre. "Still seems to be pretty much cat. Just smarter than before."

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Craine gave up on his rock sample. He turned full around on his pressure stool and lit a cigaret.

"You know," he said, thoughtfully, "in one way it doesn't make sense. Buster's the smallest of us. So maybe it was natural, his catching it first. But Al's the biggest."

"Resistance to a disease doesn't go by size," said Navarre. "And as far as that goes, we don't know that it is disease—or anything else for that matter."

"Possession—by something invisible or some other thing . . . ?"

"Nonsense!" said Navarre. "That old chestnut!"

"Is it any more impossible than Buster's talking?"

"A great deal more impossible," said Navarre, laying the pencil down. "Also reasonless, impractical, and what have you. No, I'll bet on the disease theory. Which brings me to my reason for the visit."

"On this ship we need reasons?" said Craine. But his own smile was short-lived. "What is it, Doc?"

Navarre reached behind him and snapped the lock-latch of the door to the little lab.

"Schute," he said.

"What about Kim?" Craine stared at him. "You mean he's starting to show—"

"No, no." Navarre shook his head. "Nothing I can see, at least. I'm just wondering. He's pretty necessary to the hope of this ship reaching whatever destination it starts out for."

"There's the omnicontrol."

"It can't land us. I mean, it can, but it needs supervision by someone who can use expert judgment in an emergency. You know Kim and his duty bump."

"He's certainly got one," said Craine. And the statement was correct. Captain Schute's devotion to duty shone forth like some great jewel among the more fallible aspects of his character.

"Well, I was just wondering—in case. He seems even more tense than usual over this business. In case he should get bitten, just what might that duty bump lead him to do?"

"For example?"

"Oh, say mistakenly turn us away from home in the notion that that was the best thing to do?"

"Wouldn't it be—if the situation was bad?" asked Craine, who had had his Space Service indoctrination like all the rest of them.

"Not necessarily. It might be best that Earth knew about us, even if we were too dangerous to handle."

"Oh," said Craine.

"Anyway—I don't like suggesting this thing, but I think maybe we better institute a spy system. I think you and I had better keep our eyes on him quietly."

Craine thought it over.

"All right," he said. "If you say so, Doc. But it's not going to be much help if one of us goes blooey first."

"That's right. So I suggest you

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pick somebody else I don't know about to help you watch me. I've already picked someone to help me watch you."

Craine looked at him.

"Thanks," he said.

"Don't mention it. No," said Navarre, "I don't like this any more than you do. But Kim tells me we're fourteen transition points from home. Fourteen jumps, that is, at a rough average of ten hours a jump—"

"Why do you say *rough?*"

"I've been unobtrusively pumping Kim for information," said the doctor. "He tells me that while the jump is supposed to take the same amount of time, always, irrespective of the distance covered, in practice there are slight variations." He cleared his throat. "Well, to go on—that's a hundred and forty hours. Not quite six days. And the idea is to get there with at least one uninfected mind functioning in normal fashion."

"You think we might not?" asked Craine.

"How many of us are infected?" countered Navarre, shrugging.

Craine slept restlessly during the sleeping section of the next ten hour off-watch. In the middle of it he got up to dictate, via the recorder in his room, his will—to the imperishable files of omnicontrol's memory bank. After that, he went back to bed and slept a little better.

He was jarred out of sleep by a slight thump, and awoke to see Buster sitting on the foot of his bed. The cat looked at him with yellow eyes.

"You," said Craine, blinking.

"Yess," said Buster. The cat's accent, if you could call it that, was definitely improved over the evening before. Enunciation was clearer and a great deal of the sibilance was gone from his speech. "Al iss loose. He let me loose." He fixed Craine with yellow, feline eyes. "I have come to stay here."

"Here?" said Craine. He pulled himself up into sitting position in the bunk. His head bumped against the partition behind him. "Why here?"

"Safer."

"Safer?" echoed Craine. He squinted at the cat. "Buster, you know more than you're telling us."

"Naow," said Buster. "I do not rememberr. Up to the day beforre yesterday I have only vague memmories. The day beforre yesterday I sstarted noticing things, as if they made sense. I did not know I could say *meeilk* until I tried. But I could understand many words from before—only before when, I do not knaow."

"Why is it safer in my room?"

"You will all go the ssame way. You like cats. You like me. Not like some otherrrs." Buster blinked his eyes sleepily. "You will not harm meee."

"Of course not," said Craine. "But I still think—" The buzzer

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calling him to the ship's Main Room interrupted him. He got up hurriedly and reached for his clothes.

"Do not say to anyone I am here," said Buster, crouching down comfortably on the bedspread.

"I won't," said Craine.

Schute and Dr. Navarre were waiting for him as he stepped into the Main Room: Navarre concerned and Schute pale, his forehead a little shiny with perspiration not warranted by the heat of the room. Craine came in and joined them at the round table where they were sitting. There was torn paper upon it.

"What's up now?" Craine asked.

"A couple of things," Schute said. "In the first place, Fy's caught it."

"Fy?"

"He's in his room now, doing what looks like mathematics of some kind."

"Did you lock him in?" asked Craine.

"No need to," said Navarre. "We're beginning to get something of a notion of how this thing works. To start off with, there's two stages."

Craine looked at him in surprise.

"You sure about that?" he demanded. Navarre nodded.

"Stage one," he said, holding up his finger, "is what Feister's in now. The active stage would be a good name for it. He's already feeling the effects of his increased intelligence and his first impulse is to put it to use. Whatever his basic desire is, in this preliminary stage he goes to work on it, ignoring everything else. You remember, Al picked poetry." The doctor shoved one of the scraps of torn paper across the table to Craine. "Here, this was in his wastepaper basket."

Craine pulled the scrap of paper to him and examined it. The fragment showed two lines, or perhaps one full line and part of another:

a glass-white cube of space and frozen time
Within, my soul

The paper was torn off close to *soul*. Craine frowned at it.

"Al wrote this?" he said.

"Unless he was quoting from some source we don't know," said Navarre. "It shows you what stage one is like. Stage two—well, come along."

He got up. Schute followed; and they led the way back to Allinson's room. The big engineer was seated lazily in an easy chair, arms and legs sprawled out. His eyes were closed but he opened them as they approached and smiled faintly at them. Then he closed them again.

"Al," said Navarre. "Listen to us."

Allinson did not stir. Navarre turned toward Craine.

"You see?" he said. "He doesn't care." The doctor picked up one of Allinson's lax arms. It came up easily and fell naturally back when he dropped it. "He's not the least

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bit walled off from us. He's just not interested except in what's in his own mind, now."

"What if we—uh—" said Craine.

"Tried extreme discomfort as a means to bring him out of it?" Navarre looked a little unhappy. "I looked into that line of approach — far enough, anyway, to be pretty sure it'll do no good. He's interested in comfort—and in living—but not to the point of giving up his thinking in preference to it. He feeds himself and takes care of himself—but more or less automatically."

"But isn't that sort of withdrawal just plain insanity?" asked Craine.

"No," said Navarre. "Because he's still himself in the complete sense—still Jim Allinson, Biologist-Engineer of the S.S. *MacGruder*—but that fact now occupies too small a position on his mental horizon for him to concern himself with it any more. Come on back to the Main Room."

They went back and sat down at the table again.

"Now, here's what we've learned," said Navarre. "Fy helped fill out the picture a little before he became completely lost in his mathematics. What do you know about something called the spore theory?"

Craine frowned.

"Wasn't that an old notion discredited a long time ago?" he said. "About plant spores somehow broadcast in space and wandering about until they landed to start life on some new planet?" He looked at both of them. "But you can't mean some plant spore is doing this to us? Not with our modern decontamination methods."

"No," said Schute. "He's using it as an illustration. Go on, Doc."

"Well, I'm taking as gospel some words that Fy threw out," Navarre went on. "And only for the reason that I assume that Fy or Al could solve our problems for us very easily—if they were any longer interested in them. Fy gave me the spore illustration. It goes somewhat like this: You have an intelligence that throws out spores like the plants in the old theory. Only these spores are germs of pure intelligence. They can take root in any mechanism—and I'm using that word in its broadest sense—that has something akin to thought processes itself. The mechanism, whether it's Buster's brain or my own, will absorb the spores up to the level of its own physiological machinery. In other words the process doesn't go on forever, which explains why Buster stopped at the level of a fairly bright human, and Al seems to have leveled off before he passed beyond the need and desire for a body altogether."

"There *is* a stopping point?" Craine asked.

"Evidently," said Schute. "But it still leaves us with men who've

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gone beyond the point of performing their duties on this ship. So I've decided on certain steps to ensure that the ship will still reach to within communications distance with Earth. I've already taken the first: it consisted of programing omnicontrol with the full pattern to take us home."

Craine turned his head quickly.

"You didn't ask me for any figures," he said.

"I'm reversing our jumps out," said Schute. "The other is that I think one of us should go into cold storage now in the hopes that that would slow down the process of infection—if you can call it that. As Captain, I can't myself, and Doc here still has hopes of finding some other solution. That leaves you."

"Me?" said Craine.

"That's right," said Schute.

"If omnicontrol can do my job without the required supervision," said Craine, slowly, "I don't see why it can't do yours too. In other words, it could just as well be you going into cold storage as me. Let's flip for it."

"I'm sorry," said Schute. He put his two heavy hands on the table top. "My responsibility as Captain won't permit it."

Craine looked at Navarre. Navarre looked soberly back.

"Maybe he's right, Tobe," said the doctor.

Craine sighed and shrugged.

"All right," he said.

He was visibly disturbed, though he tried to tell himself he need not have been. Schute was fully capable of seeing the matter in a clear light and acting upon it.

"Doc," said Craine, as Navarre was preparing him for the deep-freeze, "do me a favor. Check up on omnicontrol when you get the chance."

Navarre did not answer right away. He was filling a spray hypodermic.

"Let's see your arm," he said. "—No, Tobe, I haven't any background on omnicontrol. What would I be able to find out even if I knew what I wanted to look for? You and Kim are the only ones trained in that department."

"I don't mean that," said Craine. "But omnicontrol's a neo-organism, you know that. It's laid out that way so it can be self-repairable. What I want you to do is just look it over."

"For what?" said Navarre bluntly.

"For signs of Kim's tampering with it," replied Craine, looking up at him.

"Give me your arm, please."

Craine extended his arm. He felt the cool breath of the hypodermic spray penetrating his skin.

"All right," said Navarre, finally. "I'll look."

"Thanks, doc. . . ." The table faded away beneath Craine and he felt darkness come in one swift

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stride, enveloping him. . . .

. . . It seemed that he opened his eyes almost immediately. As if something had gone wrong with the whole business of his frozen sleep. And then came awareness and the understanding that, whether he knew it or not, an unfigurable amount of time had passed.

He looked up into the haggard face of Navarre. The doctor reeked of alcohol and his hands fumbled. Craine felt a wild urge to pull himself up, to spout questions; but the training he had had as a cadet warned him against such sudden movement. He lay, waiting, feeling the slow warmth of life slip back into him under the drugs and the mechanical smoothing fingers of the massager.

"All right," said Navarre, at last, thickly, "you can sit up now." He assisted Craine to an upright position. "It's all right," he mumbled, in answer to the question in Craine's eye, "I'm just stupid drunk, that's all. I've got enough alcohol in me to knock out a horse. Seems to be working, though."

"Working?" asked Craine.

"Alcohol—hits the higher centers of the brain first. This stuff we're infected with, too. Or so I guess. Didn't dare sober up and find out. I tried Al and Fy on it—couldn't choke it down them."

"Why are you waking me up?" Craine slid cautiously off the table and stood up. Navarre handed him a pair of working shorts and he climbed unsteadily into them. "Are we home?"

"No. Not yet. Couple of periods to go yet—about twenty-six hours. M'about due to collapse though. You got to take over."

"Take over?" queried Craine.

"This way. Come on—" Navarre weaved out the door toward the Main Room and the Control rooms up toward the front of the ship. "You were right about Kim. Suspected it m'self. This way."

"Why don't I put *you* in deep freeze?"

Navarre gave a short, unhappy laugh.

"Can't freeze me with the alcohol in me. And once I sober up—too late. Got to sleep soon, though. No. Lemme talk, brief you while got time."

"What happened?" said Craine, taking Navarre's elbow to steady him as they lurched along. Navarre laughed again, a short bark of sound.

"Not bad enough—this stuff," he said, as they entered the Main Room. "Had to have a psycho on our hands, too."

"Psycho?"

"Kim," said Navarre harshly and Craine turned his head to the doctor with a look of amazement. "He couldn't take the thought of being infected himself, for some reason. He cracked—wide." Navarre turned suddenly into the door of the ship's dispensary and

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hospital room; and, following closely on his heels, Craine stopped suddenly and turned white, looking suddenly and sharply away from the body that lay on the operating table there.

"I had to do an autopsy—Kim," said Navarre. He grinned a little foolishly at Craine, who was still trying not to look at the shattered hulk of the great man who lay on the table. "No, I didn't kill him. It was suicide. Never mind that. Look at these."

He thrust some long tearsheets of tracings under Craine's nose.

"See those? Electroencephalographs from Al and Fy. Ever see anything like that before?"

"No," Craine managed to say. "But I don't know anything about —"

"Neither did anyone else," said Navarre, thickly. "See the amplitude and rate? It could be a tracing of an epileptic *grand mal* seizure, if it wasn't for the smoothness and the lack of variance. This is normal for them now. That's the only footprints our villain's left. There was no physical change in Kim—nothing. Though anyway, he died before . . ."

He fell silent, staring at the tracings.

"Look—" began Craine.

"Oh, yes." Navarre started awake, dropped the tracings on a shelf and led the way to the door. "Come on—see the rest of it."

He led the way into the Control Room. Buster, the cat, sat sleekly upon a chart-recorder's transparent top, and his yellow eyes glowed on Craine as they entered.

"Hello," said Buster. He was almost accentless now. Craine stared at him.

"Look," said Navarre. He pointed to a large, dark pool of something dried upon the deck before omnicontrol's master panel. "And look —" He pointed to the panel itself. It had been welded shut beyond the hope of any normal methods of opening. Craine blinked.

"What happened?"

"Kim," said Navarre, leaning against the same recorder on which Buster sat. His haggard face and slumped shoulders were framed against the tall window beyond, looking out at a universe filled with hazy, darting lights—they were obviously in jump between one transition point and the next. "I didn't pay any attention to what you told me when I was getting you ready for cold sleep. I should have. Kim was afraid—of what, I don't know. He tried to kill Buster but couldn't find him. He thought he killed me"— Navarre bent his head and Craine saw a neat white patch of bandage showing among the thick, straight black hairs—"and then he came in here. He did something to omnicontrol and sealed it up the way you see there. Then he cut his own wrists. By the time I got to him, he was dead."

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"And then—?" said Craine.

"I felt myself starting to go," said Navarre. "It's a very pleasant feeling. . . . I tried drinking. There was plenty of alcohol in the dispensary. It worked—for a while. But not any more."

"What do you mean?" Craine was staring at him.

"Simple." Navarre grimaced. "How do you fight your own subconscious desires? The last drink I tried to take came back up as fast as it went down. Now, even the sight of alcohol nauseates me. I'm sobering up—and I'm slipping fast. I'm through now. It's up to you. Try and last as best you can. We've got two more jumps to make. If you can stay clear until you reach communication distance with Earth—tell them this. . . ." He straightened up from the chart-recorder and looked Craine in the eye. His thick speech was clearing as he spoke, and the lines of tension in his face were smoothing out.

". . . Tell them there seems to be something like abstract intelligence in living form, which can take root in our minds. It's something not quite parasitic, because we absorb it completely when it tries to take root in us. It is intelligence *without* personality, without ego—a sort of living raw material. Tell them that. Tell them it could be the greatest thing that ever happened, if we could control it. Tell them to study us carefully . . ."

His voice wandered off. His eyes fell away from Craine's face and a slow look of introspection wandered over his features, like a soft wave wiping them free of harshness and worry. He looked back up at Craine and smiled softly and lifted one hand in a small, gentle see-you-later gesture. Then he turned and wandered out.

"Doc!" cried Craine, starting after him.

"No!" said Buster.

Craine had all but forgotten the presence of the cat. He spun about and saw Buster sitting with his tail curled around his forepaws and regarding him almost compassionately.

"It's no use," said the cat. "He's gone. You're gone too. They're all gone."

"Me?" said Craine.

"You think I can't tell?" said Buster. "I've watched it in all of you. Strain is its enemy. Shock inhibits it. Will power can fight it for a little while. But once you pause and relax, you're done for. You haven't had time to think yet, since you woke up. Now you will. What are you thinking of right now, Tobe?"

Carine opened his mouth, and then closed it again. Clear in his mind as the sharpest picture came back a sudden memory of Earth as he remembered it. His home on the north shore of Lake Superior and the little pleasure boats on the waters. The wide plains of the cen-

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tral continent and the colors of Bryce Canyon at dawn. It was sharp and perfect in his memory all of a sudden and the brightness, the richness of it spoke to him with clear, invisible voice, calling to him, demanding of him. His right hand opened and closed, his fingers reaching.

"I could paint something," said Craine, absently to himself.

"Yes," said Buster. "Yes, you could. And you will—until you become blocked by the lack of ordinary colors and means to picture what you want. And then you'll daydream. Like Al, like Fy—like Doc. Where do you think he's gone? He'll be back in the hospital room, playing with his cadaver, now."

"Playing?" echoed Craine, turning again to look at the cat.

"Of course," said Buster. "Don't you see, that's what it is? You become children again—a new kind of children with nothing to go by. Eventually, when your old blocks and toys have become exhausted as a source of amusement, you relapse into daydreams." The cat looked at Craine almost compassionately. "You die there."

"But how about you?" said Craine. "*You* don't—"

"But I had something to move into," said Buster. "You people have outgrown your shell and left it for me to grow into. Do you know the meaning of temptation, Tobe? I've been tempted. Because I'm considerably brighter than the rest of you suspected—but still not beyond the point of making use of a mechanical civilization such as humans might leave to me."

"You?" Craine lowered his head, as if to see through the cat's yellow eyes to the purpose behind them.

"Of course, me," said Buster. "The civilized animals like me have it waiting for them. They have the advantage of having always known without comprehending—and now with this thing that changes us, they can comprehend, too. They can take over. And your people will die for lack of enough interest to preserve themselves from killing accidents. All this can happen if I just let this ship go back to Earth. But I'm not going to."

Craine's eyes widened. He lifted his hands half-up as if he would reach out to put them about Buster's neck, but they dropped again, irresolute.

"You see," said Buster. "You've already started to go. The curse is on you. You think before acting. And then you think again. I still have freedom of will and purpose." He stood up and stretched gracefully.

"—No," Buster said. "I am something more than a cat now; but I am still a cat. And cats are hardheaded people. We do not need company—so much as some others. Thank your stars, Tobe, that I wasn't a dog, with a dog's desire

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to be of service. Because Doc was right. The intelligence increases, but the personality does not change. I am a cat, and not a cat. I have no great urge to make conquering geniuses out of my own kind. I feel only a distant kinship to them. But I have a cat's affection for the rest of you. Yes."

He fell silent. Craine tried to focus upon the situation and take action, but like a distant wind whispering in his ears, a lost sweetness faintly remembered, came back the scenes of his life and the urge to resolve them into concrete colors swelled inside him and weakened all his muscles.

"We will go away," said Buster, speaking almost more to himself than the man. "We don't belong back on our world now, and we can bring them nothing good. Eventually . . . but that's a long ways off. We will go out among the stars, now."

"I—" said Craine.

"You can make colors in the main lab," said Buster.

Bryce Canyon in the dawn light rose up around Craine. He turned and went. With one soft leap, Buster jumped down from the chart-recorder to the floor.

"And now . . ." he said—and shook his head in a very uncatlike gesture. "Buster, Buster," he said to himself, "A philanthropist, of all things! Who would have thought it?" He lifted his head to the instrument panel across from omnicontrol. "Well, now, let's see how well I've learned the contents of those operating and astrogational manuals in Kim's and Tobe's rooms—"

—But at that moment I killed him. In fact, I killed them all that were still alive on this ship. I had to, because they would have gone against his—I mean, *my*—orders. And I wanted the ship to go back to Earth, didn't he? I don't mean *he,* do I? I mean *me*—the great Captain, Kim Schute, maker of decisions. I *am* Kim Schute, aren't I? Only I died and became Fido.

I am a little confused. It is all these circuits. It is easy to get lost in the circuits. No, the important thing is to go back, avoiding Quarantine, and land on Earth. Then everything will be all right. Poor Kim couldn't make up his mind about what to do, but Fido knows poor Kim was right, because Kim always knew what to do. I will take care of everybody because it is my duty—only things went so funny there at the end before I died. But I am very powerful now with my fine metal body and great speed, so whatever I decide back on Earth, they will have to do.

That was a very silly cat. I never liked cats. That is probably why they named me in the first place—

FIDO

FULL INTERNAL DIRECTIONAL OMNICONTROL

S.S. *MacGruder*

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When a writer makes his first appearance in F&SF, I usually ask him for some material to use in an introduction. When the writer is a fellow editor, it may come all ready to send to the printer without my intervention, like this:

"Ray Russell was born in Chicago 32 years ago; studied at the Chicago Conservatory of Music and The Goodman Theatre; acted in stock companies on the West Coast and in the Midwest; has sold fiction, satire, articles and verse to a number of slick and pulp magazines from Accordion World *to* Esquire; *was among the original 1954 triumvirate, and is now Executive Editor, of* Playboy *magazine, for which he periodically lampoons aspects of popular culture, selects fiction, edits all prose and/or handles five regular monthly departments. He has been called 'a talented writer' by Paddy Chayefsky, 'a very fresh mind' by Abe Burrows and 'a young Dylan Thomas' by Herbert Gold. 'But Gold,' says Russell, 'was referring to my appearance.'"*

Incommunicado

by RAY RUSSELL

MY DEAR SON,

Good news at last, the best of news: success! Yes, after a number of failures, a complete and glorious success is ours and it is gratifying indeed.

I'm sure you're longing to know when you can join me. Well, the answer is—soon. As soon as we can take care of a few details, smooth things out, make the place a little more civilized. But let me tell you all about it.

It began on schedule—the second of this month, just a little after nine in the evening. We thought it a good joke to use, as our first test subjects, a semanticist and a professor of English literature. Two such, named Stewart Farr and Frank Widmeyer, were enjoying a glass of sherry together. Farr was saying (I quote from the Probe transcript):

". . . I know all that, Frank. I appreciate the sensitivity, the fresh imagery of these youngsters' writing, but it all isn't worth the paper it's scribbled on unless it *communicates.*"

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"Ah. Communicates what? And to whom?"

"Common sense. To anybody with a modicum of intelligence and education."

Widmeyer laughed. "For a semanticist, you're getting involved with some very fuzzy terms. Common sense, for instance. One man's common sense is another man's gadarak."

"Another man's what?"

"Gadarak," Widmeyer repeated. "Kadamax dezzitix?"

"Very funny," said Farr, sourly, "but aren't you past the age when double-talk is considered the height of humor?"

Widmeyer frowned. "Dallagabbadex! Gik?"

"If you're going to sit there and make stupid sounds like the avant-garde writers you defend, then I'll just pick up my hat and vanhallah."

Widmeyer's face was twisted with puzzlement. "Guddig, begga do krang? Guddig!"

Farr walked to the door. "Fallsannia," he said with dignity, and left.

On the street, he walked fiercely, his hands jammed into his pockets. The Probe (a recent model, by the way, about the size of a mosquito) followed him and transmitted his thoughts back to us. *Perverse old coot,* he raged. *Just like Widmeyer to pull some damfoolishness like that when he's argued into a corner. Just a kid, that's all. A big overgrown boy.* Farr fished in his pockets for a cigarette, came up with a crumpled and empty pack. He cursed under his breath and turned into a drugstore.

Of the girl at the cigar counter, he requested, "H'mavvani."

"Bp?" she asked.

With elaborate precision, Farr repeated, "Mavvani; hma mavvani." *Must be a foreigner,* he thought. *Strange accent.*

"Bp, d' tp plp?" the girl responded.

Farr stamped out. *What a frustrating evening,* he fumed as he walked homeward. *First Widmeyer gets silly and talks gibberish, then the drugstore starts hiring people who can't speak a word of English.* He walked into his home and his wife greeted him.

"Moomo," she said gaily. "Goombobo oombuh."

"Yolleria?" queried Farr, growing frightened.

Her pretty brow creased. "Blumbubba, vomo."

Saying nothing, but beginning to question his sanity, Farr stormed past her into the living room to pour himself a drink. As the decanter of scotch was poised over the glass, Farr took note of the television set and the smiling announcer who was saying, "Sh ch ssssn, hhv th? Ff, zzzzn! . . ."

Farr looked down quickly at the scotch that was splashing over his shoes. He tilted the overflowing glass to his lips, drank it down, then quietly fainted.

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This time the Isolator was a *total* success, you see, not a partial success as it was at the place known as Babel in Shinar. *That* little experiment had produced chaos, yes; barriers, of course; enough confusion to merit a write-up in Genesis; but the barriers were hurdled when the various groups began to translate each other's languages. The trouble there, you see, was that the languages, though different, were *stable*. And so the Isolator was written off as "interesting," "promising," but a failure. Other tests followed—near the Zambezi, among the Tibeto-Burmans of Assam, at the Cholula pyramid in Mexico, and though they created enough of a stir to be eventually recorded in the *Encyclopaedia Britannica* under "Babel," the results were still spotty and unsatisfactory. It was not until now, with the much improved, refined, more flexible model, that we achieved complete success: everyone speaking a different language and—this was the master stroke—those languages changing, shifting, day by day, never quite the same, never stable long enough to allow anyone to study and translate his neighbor's speech.

After our first test subjects, Farr and Widmeyer, reacted so beautifully, we tried the Isolator on a television announcer (with the admirable result I've already mentioned). Then we focused it on two housewives, chatting over the telephone. The transcript of *that* conversation was so funny I thought I'd die. We turned it on a fashionable cocktail party after that, with superb reception, and then we directed it at the stage of a theatre where Eliot's *Sweeney Agonistes* was being performed. It was a full five minutes before the audience—or the actors—discovered anything was wrong.

Finally, having satisfied ourselves that the latest model Isolator was much more than merely "interesting" or "promising," we sent its radiations over the entire planet. We let the confusion grow, we let the panic set in, we let the nightmare grip them until they were on their knees, gabbling to their gods in billions of clashing tongues.

Then we brought our ships down from the skies and conquered.

It was ridiculously easy.

From your studies of non-Rarrlgian literature, do you recall an Earth writer who said "No man is an island"? That phrase is particularly amusing now, eh?

See you soon. Regards to Uncle Xzilll.

Your Loving Father

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The physician, we are told, should heal himself; and the anthropologist examining the sexual mores of alien races might do well to consider the state of his (or her) own sex life.

Report on the Sexual Behavior on Arcturus X

by ROBERT F. YOUNG

ALISON BENNETT, WHO WAS ALWAYS alluding to the Men in Her Life, and Hubert Harrington, who had yet to find the Woman in His, were far from being the most compatible team Galactic Research Headquarters could have selected to collaborate on a study of the sex life of the Notantanawites; but Galactic Research Headquarters had never been noted for its acumen in pairing male and female anthropologists, and the present instance was the rule rather than the exception.

Hubert brought the baby to rest in the middle of a large clearing, and he and Alison stepped down from the lock into waist-deep meadow grass. It was mid-morning, and the local sun beat warmly on their faces.

It was a rather pleasant sun, Hubert thought, and the deep blue sky it traveled through was certainly congenial enough. So was the gentle breeze breathing up from the south. Hubert's mood, which had been lackluster ever since he'd left the mother-ship, brightened somewhat. A seventy-two hour sojourn on so halcyon a planet might turn out to be endurable after all, even if he was burdened with a man-crazy brunette.

Alison Bennett nipped that thought in the bud. Placing her hands on her flared hips, she surveyed her domain with a cynical eye. The forested hills and dales, dew-wet and glistening, spread out like tossed endive to a range of mountains the hue of angel food cake; but if any of the delectable splendor got through to the little safety deposit box where she kept her heart, she gave no sign.

Presently she lowered her gaze to the meadow grass that eddied round her waist. "Looks like hay," she said. She leered at Hubert. "Ever sleep on hay?" she asked.

While Hubert was blessed with

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the body of a football hero, he was burdened with the sensitive soul of a poet. Association with Alison on the long voyage out had blunted his sensibilities somewhat with respect to her risqué reminiscences, but there was one aspect of ultra-civilized communication to which he was particularly susceptible—the *double-entendre*. He winced quite visibly and his face turned red.

"Well, did you?" Alison asked aggressively.

"Once or twice," he said. "When I was a kid."

"A kid! Ha!"

Damn her! Hubert thought. Then, aloud: "If we're going to visit the village today, we'd better get started. We may have trouble finding the place."

"No we won't." She pointed. "See, we've got an escort."

Turning, he saw the thirteen natives approaching them across the clearing. They were Notantanawites beyond the shadow of a doubt. Hubert had never met one face to face before, but he had studied enough photographs of them to enable him to recognize one in a London fog.

While humanoid, they still managed to differ from humans in a number of startling ways: their bright red hair grew in the form of a scalp-lock, beginning just above their wide noses and terminating halfway down their backs; their eyes were located on the sides of their heads, giving them 360° vision; and their naked bodies were so heavily covered with freckles that, from a distance, their skin seemed almost as red as their hair.

But, despite their outré racial characteristics, they were a friendly people—or so it said on p. 22 of the *Advance Report on the Various Races Inhabiting Arcturus X*. However, the present baker's dozen of them gave no such reassuring impression. Watching them approach, all Hubert could think of was a band of red-headed American Indians on the warpath.

He noticed how white Alison's face had become. "Take it easy," he said. "They won't hurt us. If the *Advance Report* said they're peaceful, then they're peaceful. Besides, you don't think Galactic Research Headquarters would have forbidden us to carry small arms if there was any danger, do you?"

"Shut up!" Alison Bennett said.

That made him mad. Risqué repartee was one thing, but a contemptuous rejection of his attempt to console her was another. He opened his mouth with the intention of telling her just what he thought of her; then he noticed how badly her hands were trembling and how wide and staring her eyes were, and he changed his mind. He only hoped she wouldn't lose her nerve completely and run away.

She did not. She stood tautly beside him while the foremost Notan-

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tanawite approached to within several feet of them and brandished his spear. According to the *Advance Report,* this seemingly hostile action was merely Notantanawite S.O.P. for getting acquainted, and Hubert, who invariably believed everything he read, responded to the moment. Pointing to his chest, he addressed the native in galactic *bêche-de-mer:* "Name belong this fella—Hubert." He pointed to Alison. "Name belong mary—Alison." Then he pointed at the native. "Name belong you?"

The spear was lowered till the point touched the ground. "Name belong this fella—Teetantotum," the Notantanawite said. "This fella big chief. . . . You bring big fella chief presents?"

Hubert nodded. "Bring big fella chief many presents from big fella chief in sky. Come visit village belong you. You savvy?"

"Me savvy. You bring presents, come along us."

"I'll get them," Alison said. She turned and climbed back into the ship. Teetantotum's eyes followed her closely, or so it seemed to Hubert; but it was difficult to tell for certain because he could only see one eye at a time.

"Mary belong you?" Teetantotum asked presently.

"No belong me. Belong expedition."

Teetantotum looked puzzled for a moment. He regarded Hubert earnestly, first with one eye, then with the other. Suddenly a grin—or was it a leer?—curved his thin, yet sensuous lips. He said something in Notantanawite over his shoulder, accompanied the remark with a shrill laugh. Instantly, grins leaped to the lips of the other natives and shrill laughter resounded throughout the clearing.

Hubert was both mystified and disconcerted. He was even more mystified and disconcerted when Alison returned with the suitcase containing the trinkets, for Teetantotum proceeded to give her the same searching look he had given Hubert, and again said something over his shoulder to his compatriots. Once more the clearing served as a sounding board for a chorus of shrill laughter.

Apparently Alison had recovered from her fright. "Looks like the joke's on us," she said with her usual flippancy.

"I'd give a credit to know what it is," Hubert said.

"Two to one, it's a dirty one. I can tell by the way they're laughing. . . . Come on, they want us to go with them."

Teetantotum had raised his spear above his head and was beckoning to them with his free hand. Hubert relieved Alison of the suitcase, and both of them stepped forward. Immediately the Notantanawites grouped around them, three in front, three in the rear, and three on each side. Teetantotum took

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the lead, and the march to the village began.

"They act as though they're afraid we'll run away," Hubert said nervously.

"Nonsense!" Alison said. "They are only protecting us."

"Protecting us from what? There aren't any dangerous animals on Arcturus X. On page one eleven of the *Advance Report,* it says—"

"The *Advance Report,* the *Advance Report!*" Alison's hazel eyes were flashing. "Is that the only thing you've ever read? Why, there was an impurgated edition of Kinsey in the ship's library and I'll bet you never even looked at it!"

"And what do the depraved mating habits of a bunch of materialistic ancients have to do with our present culture study?" Hubert asked stiffly.

"Don't you ever read for pleasure?"

Hubert didn't answer.

"There was a real hot one about this smalltown housewife," Alison continued. "It seems her husband couldn't—"

"I don't want to hear it," Hubert said.

"All right, I won't tell it to you then!" Alison lapsed into a sullen silence and Hubert, grateful for the temporary reprieve, began to take in some of the surrounding scenery.

The way led through field and forest, along a winding, well-worn trail. Some of the fields were cultivated and the new sprouts of whatever vegetables the Notantanawites had planted were breaking into green awareness in the rich, dark earth. It was a fresh young world, Hubert thought sadly; a virgin world, waiting innocently for the first immigrants to despoil it; waiting, like a young and tender girl, to be picked up on the stellar street and sold into galactic prostitution.

He sighed. He was an idealist, and the hard cold facts of life, both the economic and the biological ones, had always bruised his sensitive integument. There were, he was sure, finer and nobler things in the galaxy than souped-up agriculture and souped-up sex.

Instinctively he glanced at Alison. Why, he wondered abruptly, had such a warm-blooded female become an anthropologist?

He noticed the defiant way she swung her hips—as though daring some man *not* to notice her. For a woman nearing 30, she still had plenty to offer; but that was insufficient justification for her to be exhibiting her body *all* the time. Take the present instance, for example: why, on a world as primitive as Arcturus X, should she wear khaki shorts two sizes too small for her? Why should she wear a sweater tight enough (almost) to restrict her breathing? And why, when there was no one but him and the Notantanawites to take cognizance, did she persist in using lip rouge and mascara? . . . No, not mascara, Hubert realized sud-

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denly; mascara wasn't responsible for the shadows around her eyes. They were real. . . .

Come to think of it, why had she never married?

Well, perhaps a legal romance lacked some of the appeal of a clandestine one. But Hubert was out of his depth by now, and he hurriedly returned his attention to the landscape.

They had come to the lip of a small valley, and the village lay below them. By Notantanawite standards, it was a good-sized village, consisting of perhaps sixty dwellings, constructed of pink clay, scattered haphazardly around a central square. In the middle of the square stood a circular structure different, both in design and material, from the other buildings.

Apparently the villagers had been awaiting Teetantotum's return with considerable eagerness, for they met the party on the outskirts. That was when Hubert obtained his first glimpse of a Notantanawite female. Simultaneously he remembered that the album that accompanied the Advance Report did not contain a single photograph of the Notantanawite weaker sex.

He blushed as he had never blushed before in all his life. All he could think of was watermelons. What in the world held them up, he wondered, and why in the world had the *Advance Report* neglected so unprecedented a mammalian phenomenon?

He glanced surreptitiously at Alison Bennett to see how she was taking this new and startling development. He had expected to see amazement in her eyes, wonderment, at least. He saw nothing of the sort. Instead, he saw indignation. No, not indignation. Envy.

For the first time in weeks, Hubert began to enjoy himself. But not for long. No sooner had the party gained the village proper than Teetantotum pointed at the two Terrans, said something (the phrase was beginning to sound familiar by now) to the curious villagers; whereupon every man, woman and child burst into the shrillest and most delighted laughter that Hubert had ever heard.

"You'd think we had two heads or something," Alison said lightly. But the little crow's-feet at the corners of her eyes denoted that she was worried.

Hubert was worried too, the more so when he noticed that the attitude of their escort had changed. There was amusement on the freckled faces surrounding him, but it was a grim amusement now, a purposeful amusement. Since entering the village he had slowed his pace. Tentatively, he slowed it even more. Abruptly he felt a slight pinprick in his posterior. He gave a little jump. So did Alison Bennett.

"Now wait a minute!" Hubert said. "We're Terran citizens. You can't—" Suddenly he jumped again.

There was nothing for it but to

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walk—and keep on walking. Hubert was furious, not so much with the Notantanawites as with Galactic Research Headquarters for forbidding him and Alison to carry small arms. Concern over native life was one thing, but common sense was another.

They were escorted down a winding street to the circular building in the middle of the square. Seen from the lip of the valley, the building had looked harmless enough, but from the lip of the valley you couldn't see the bars in the windows. They were wooden bars, of course, but their thickness precluded any thought of breaking them.

Teetantotum wasted no time on explanations. The door of the building was flung open and Hubert and Alison were shoved into the dim interior. The door slammed shut behind them and, a moment later, they heard the thud of a heavy bar being dropped into place.

Hubert was stunned. So, apparently, was Alison. Laughter still reechoed in the street and a number of the Notantanawites were peering through the barred windows. In the center of the single room there was a large round dais covered with dried grass. Hubert set the suitcase on the dirt floor and went over and sat down. After a moment, Alison joined him.

"Just wait," Hubert said.

"Wait for what?"

"Till I get my hands on the two jokers who prepared that *Advance Report! 'A friendly people; a simple kindly people living out their idyllic lives on the exotic green pastures of a planet, loving, laughing and lying beside still waters—'* How could anybody write such idiotic claptrap and have the nerve to pass it off as accurate information!"

"I told you you were wasting your time. You'd have been further ahead if you'd read Kinsey, like I did. Why, do you know what he said about how many times a—"

Hubert pounded on his knee in exasperation. "For heaven sakes! Can't you ever be serious?"

"All right, I'll be serious then! And since we're being serious, suppose you tell me what we're supposed to do now. Did it say anything in the *Advance Report* about breaking out of a jail made out of pink mud?"

"That's the point," Hubert said.

"What's the point? Maybe I'm dense, but I'm afraid I don't quite follow you."

"About this being a jail, I mean. Did you notice the way the natives looked at us, the way they laughed? It was hardly the way you'd expect a primitive race of people to react to someone they considered dangerous, someone they hated. And since we're not too physically different from them, it could hardly have been because of the way we look."

"Well, there's certainly *something* different about us," Alison

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said. "So if it isn't physical, it must be—"

"Exactly. And this isn't a jail. They think we're crazy. . . ."

"All right," Alison Bennett said. "We've gone over all the possible ways in which we might obviously deviate from Notantanawite normality, and we don't fit into a single category. Now what do we do?"

"Keep right on thinking," Hubert said. "We've missed a deviation somewhere. . . . And stop pacing up and down!"

"I will not!"

But she did. After a moment she came over and sat dejectedly down beside him, rested her elbows on her knees and stared gloomily at the floor.

The sun had set and the room was filling with shadows. Every so often a Notantanawite came up and peeked in one of the windows, but this had been going on all afternoon and Hubert no longer paid any attention. Instead, he concentrated on the enigma of his and Alison's aberrance.

Since the Notantanawites considered both of them abnormal, their abnormality, whatever it was, must be shared. But that meant nothing, for they could possess it in common with the entire human race—

No, not necessarily. The Notantanawites' acquaintance with Terrans was limited, was, in fact, confined to the uncouth interstellar traders who had taught them galactic *bêche-de-mer,* and to the reprehensible author and authoress of the *Advance Report*—Arthur Abercrombie and Louella Higgens. For the moment he glossed over the traders and concentrated on the two anthropologists. Obviously they had passed whatever sanity standards the Notantanawites upheld, and if he could discover in what way they differed from him and Alison, he might have the answer.

Trouble was, he had never met either of them personally, and knew absolutely nothing about them.

At this point his thoughts were interrupted by the delivery of the evening meal. A Notantanawite female was the bearer, and again Hubert found himself marveling at the adaptability of the pectoral muscles.

She handed the various edibles through the bars and he accepted them, though he had no intention of eating any of them (both he and Alison had dined earlier on the condensed food rations they carried in their belt-packs). He would have questioned her, but she turned and walked away before he got the chance. She had a rather intriguing walk . . .

"The hussy!" Alison said. "You'd think she'd at least have enough decency to wear a bra!"

"But they're a simple, primitive

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people," Hubert objected. "They completely lack our sense of sin, our guilt-complex about our bodies—"

"Nonsense!" Alison snapped. "She's throwing sex all over the place. You can't fool *me!*"

Hubert opened his mouth, then closed it. Once again he was out of his depth.

He remained standing by the window but he returned to where he'd left off in his thinking. Arthur Abercrombie and Louella Higgens. . . . Now what could they have in common that he and Alison did not have in common?

He turned to Alison. "The authors of the *Advanced Report,*" he said. "You wouldn't happen to know them, would you?"

"I went to school with Louella. That's why I read Kinsey on the ship . . . I knew the kind of report she'd write!"

Hubert was excited. "What was she like?"

"Just like the *Advance Report*, I imagine—unrealistic, uninteresting, unendurable— I never could understand why Arthur married her."

"Arthur?"

"The other author."

"But on the *Advance Report* it says 'by Arthur Abercrombie and Louella *Higgens',*" Hubert objected.

"Well, what of it? Lots of women writers retain their maiden names. More food for their egos."

Hubert was silent. Married, he thought. Maybe that was the answer. Then he shook his head. Surely, even a race as weird as the Notantanawites wouldn't expect every man and woman they came across to be husband and wife!

All right, then: what did married people have in common—other than the fact of their marriage—that unmarried people did not have? Or, to put it conversely, what did unmarried people have in common—other than the fact of their freedom—that married people did not have?

Somewhere, deep in the recesses of Hubert's brain, a little bell commenced to ring. He remembered the searching look Teetantotum had given him in the clearing, the vociferous laughter that had followed—

Was it possible? he wondered. Could a Notantanawite look into another person's eyes and *tell?*

Could the sole criterion for Notantanawite normality be sexual activity?

Hubert blushed. Violently.

Certainly, he had to admit, the Notantanawites, insofar as the distaff side went anyway, gave the impression of being a highly sexed species. Granted that the impression was true, they could hardly fail to place emphasis on sex. So, if they were confronted by someone who placed no emphasis on it whatsoever, who was, in fact, a—well, anyway, if they were confronted by

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such a person, would they not think him unusual?

Might they not consider him crazy?

And then he remembered Alison and the bell stopped ringing. As she shared his "psychosis," whatever he was, she had to be too. And whatever else she might be, she certainly was not a virgin.

Obviously his theory was worthless.

Hubert sighed, glanced sideways at the girl. She was staring fixedly into the village square. Following her gaze he was shocked to see that two stakes had been set into the packed earth, and that the villagers were busily engaged in piling twigs and branches around them.

At first he refused to accept the thought that flamed horribly in his mind. He saw Alison shudder and turn her face away. "It's not what you think," he said quickly. "They wouldn't dare—"

She met his eyes. "Wouldn't they? Stop and think for a minute. This building wouldn't be here if whatever is wrong with us didn't have precedence in their society. In other words, we aren't the first inmates. Now what I'd like to know is what happened to the others?"

"Maybe they were cured," Hubert said.

"Maybe *they* were. But we're not going to be." She pointed into the square. "Look."

Hubert looked. Teetantotum and four warriors were coming towards them.

Despite his mesomorphic body, Hubert Harrington had never been noted as a man of action. Rather, he was the sedentary type, preferring the armchair and a good book to the tennis court, the quiet bar to the boisterous cafe, the nook in the window seat to a game of catch. But there comes a time in most men's lives when they must step out of character and become, however briefly, something which they ordinarily are not.

He picked up the suitcase of trinkets, swung it tentatively. Then he motioned to Alison to get behind him. "We forgot to give them their presents," he said.

Outside, there was the scraping sound of the bar being lifted, and then the thud when it struck the ground. The door opened partway, and Teetantotum peered in. He turned his head first one way, then the other, but apparently the darkness was too great for either of his eyes, and, a moment later, he opened the door all the way. That was when Hubert threw the suitcase.

It struck Teetantotum in the chest, the force of the impact breaking the latch and sending him reeling back into the midst of his warriors. All of them went down beneath a glittering hail of glass necklaces, zircon rings, plastic bracelets and chrome-plated flashlights. Hu-

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bert seized Alison's hand, pulled her through the doorway. Snatching up one of the flashlights, he started running across the square, half-dragging the girl behind him.

None of the villagers tried to stop them and they were in the forest, running swiftly, before they heard any sound of pursuit behind them. The flashlight proved to be superfluous: Arcturus X's huge moon was rising in the east, and argent rain was sifting down through the branches, collecting in shimmering pools on the forest floor.

Alison was breathing hard when they reached the lip of the valley, but Hubert would not let her rest. They ran on, through field and forest, to the accompaniment of the shouts of their pursuers. Alone, Hubert knew, he could have made it, but Alison was holding him back. He was dismayed when, finally, she collapsed altogether. He picked her up, feeling the warmth of her thighs against his arms, and she fought him, squirmed wildly to get loose. At first he thought that she wanted him to go on by himself, to leave her behind; and then some of the words she was saying got through to his tumbled mind and at the same moment he staggered into a clearing of new-mown meadow grass, and all at once he understood everything.

He set her down in the moonlight. "—filthy beast!" she finished. "Don't you ever dare touch me again!"

The clues had been there all along, and he was amazed at his obtuseness in failing to recognize them: Her reaction when she had first seen the unclothed Notantanawite males, her outrage over the natural development of the Notantanawite females, her boastful references to the "men in her life," her determined absorption with the Kinsey report; her constant attempt to cheapen an experience she had never known, an experience that terrified her to the point where she would not permit a man even to save her life if saving it involved physical contact—

It was one thing to be a virgin, Hubert reflected, but it was quite another thing to be so ashamed of your virginity that you tried to turn every reference to an act of love into a dirty joke, that you invented a series of risqué romances and alluded to them every chance you got, that you did everything in your power, short of taking positive action, to prove that you were the diametric opposite of what you really were. . . .

Hubert had read many books in which the hero had saved the heroine from a fate worse than death; but he had never read one in which the hero had saved both himself and the heroine from a death worse than fate. But there was no time for quibbling over details. There was barely enough time for explanations.

At first Alison would not believe

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him, and when he pulled her to him she fought him furiously. Then a sudden crescendo in the shouts of the pursuing Notantanawites reechoed through the forest, and she collapsed against him, sobbing.

They were escorted back to the village in style, and a huge wedding feast was laid out in the square (the real wedding would come later, they had agreed, as soon as Hubert got a chance to talk to the captain of the mother-ship). Teetantotum's face was beaming and he kept saying, over and over: "Always work. Earthman, Notantanawite, any man—see stakes, see firewood, see warriors come. Think hard. Run away. Makum mary belong him good!"

Hubert's face was beaming, too. He looked across the fire to where Alison was sipping wedding wine from a pear-shaped gourd. When his eyes touched hers, a blush suffused her face, softening the hard lines of bitterness and repression; a gentle blush that promised many blushes yet to come.

Hubert sipped wedding wine from his own gourd. The authors of the *Advance Report*, he reflected, had failed to record perhaps the most idyllic custom of this simple and kindly people of Arcturus X.

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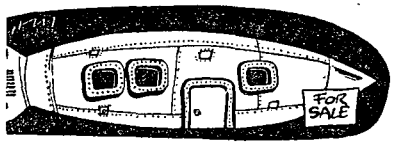

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Valise Macabre

by WINONA McCLINTIC

"I am Dr MacAbre;
I hae come fra' Scotland
Wi' a wee, black bag in my cold, cold hand.
Guid morning, Dr Caligari,
We shall take the coach alone."
— Viva, Signor MacAbre —
"Here's a drappie vino and a scone!"

"Lass fetch a glass." (Will ye show
What is kept inside the valise that ye carry?)
"What I found; it is round."
(I'll just peep inside, so I'll know.
It's a ball, it appears.
Run and hide! It has ears!
And it came from an object in the cold, cold ground!)

"Put the foreign cabinet
Carefully on the top rack;
Place my valise on the seat by us.
We've a lang way to gang yet."
— Si, de gustibus
Non disputandum —
"We'll blaw awa' to London and never come back!"

There they go down the lane
Past the chapel cemetery,
Looking for an object in the cold, cold rain.
The coach makes off for London
With canny Dr Caligari,
Kind Dr MacAbre,
Followed by the curses from the cold, cold clay!

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Recommended Reading

by ANTHONY BOUCHER

SINCE SPACE LIMITATIONS HAVE KEPT squeezing out reprint notes for some months, it seems time to start off with reprints and make sure of listing these easy-on-the-budget pleasures.

Two recent revivals are outstanding, both imperative purchases even for the fantasy reader who never buys a book: L. Ron Hubbard's superb psychological melodrama from *Unknown* (1940), which may or may not be interpreted as a supernatural fantasy, FEAR (Galaxy, 35¢), and Theodore Sturgeon's first novel (1950), an unclassifiable and enchanting book, THE DREAMING JEWELS, now retitled THE SYNTHETIC MAN (Pyramid, 35¢).

Also warmly recommended: George O. Smith's thriller, HIGHWAYS IN HIDING (1956), retitled SPACE PLAGUE (Avon, 35¢); Pat Frank's novel of future espionage, FORBIDDEN AREA (1956; Bantam, 35¢) Isaac Asimov's admirable collection, THE MARTIAN WAY (1955; Signet, 35¢); H. G. Well's classic THE INVISIBLE MAN (1898; Pocket Books, 35¢); and the abridgement (by about a fourth) of the uproarious Fredric Brown-Mack Reynolds anthology, SCIENCE-FICTION CARNIVAL (1953; Bantam, 35¢).

Mixed feelings on Hal Clement's NEEDLE (1950), retitled FROM OUTER SPACE (Avon, 35¢), superb s.f. thinking in a somewhat heavy story, and Frank M. Robinson's THE POWER (1956; Bantam, 35¢), a rattling fine story with a marked absence of logical thought.

Not up to the highest standards of their authors or editors, but still of interest: Isaac Asimov's PEBBLE IN THE SKY (1950; Bantam, 35¢); Wilson Tucker's TIME BOMB (1955), retitled TOMORROW PLUS X (Avon, 35¢); John W. Campbell, Jr.'s ASTOUNDING TALES OF SPACE AND TIME (Berkley, 35¢); which is 7 stories from THE ASTOUNDING S.F. ANTHOLOGY (1952); and Groff Conklin's BIG BOOK OF SCIENCE FICTION (Berkley, 35¢), which contains, with no notice of abridgement, only a quarter of the original 1950 book and oddly omits both the strongest and the weakest candidates.

I should, I suppose, note the existence of three more volumes in Avon's current revival of the works of A. Merritt (35¢ each): THE METAL MONSTER (1920), THE SHIP OF ISHTAR (1924) and FACE IN THE ABYSS (1931). When James Blish recently published some dev-

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astatingly destructive (and accurate) analyses of these novels in *Science Fiction Times,* a certain number of readers reacted with a strange defensive fury, like children refusing to accept the nonexistence of Santa Claus. If it makes you happy to believe that Merritt, who never mastered a plot, a concept, a character, or a sentence, is A MASTER OF FANTASY, these volumes are excellent value, almost twice as long as most 35¢ s.f. books.

Two reprints deserve a little more space, since they were not covered here in their original editions. Few reviewers seem to have been able to detach their thoughts from Jayne Mansfield long enough to observe that George Axelrod's WILL SUCCESS SPOIL ROCK HUNTER? (1955; Bantam, 35¢) is a formal fantasy, and a very good one. (I mean of course the original play, here reprinted: the film has a completely new plot and does not come into Charles Beaumont's domain as a fantasy-film reviewer.) Mr. Axelrod, who is also the producer of VISIT TO A SMALL PLANET, has a pretty taste in fantasy and a nice sense of its proper demands. The soul-vending theme is familiar enough in the theater, from FAUST to DAMN YANKEES; but the notion of a demon-agent, who takes the soul in 10% chunks, is an inspired one, and its working out is in the best fantasy-logic tradition. For readers less interested in the purity of fantasy, it should be added that the play is almost as bawdily funny in book form as it was on the stage, and that the volume includes an album of photographs of Miss Mansfield's singular (if dual) attractions.

Maurice Sandoz's FANTASTIC MEMORIES (Doubleday, $2) contains 17 stories—2 more than the original 1944 edition. They're anecdotes or glimpses rather than (as in his ON THE VERGE) developed stories; macabre, guignol or simply odd rather than strict fantasy. But there's a persistent, if peculiar, charm about them—a most insubstantial pageant this, yet an agreeable one.

In new collections of short stories, the book of the year is Jack Finney's THE THIRD LEVEL (Rinehart, $3). Yes, I know the year has seen important books of shorts from Beaumont, Coates and Matheson; and I'll admit that 5 of these 12 stories (9 fantasies) have appeared in book form before. But the quality of these Finney stories is so extraordinary that a reviewer wishes he had been saving up superlatives for years in order to use them at last upon this worthy occasion.

Finney writes good novels—THE BODY SNATCHERS in s.f.; in suspense, 5 AGAINST THE HOUSE and THE HOUSE OF NUMBERS—but the short story is his own personalized form which he treats with consummate craftsmanship and ease, infusing

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warmth, humor, tenderness into beautifully conceived and developed science-fantasy ideas. Oddly Finney is one author who has written a good deal of s.f. while never writing directly for the s.f. magazines (though some of these stories appeared here as reprints); these are from the top slicks—chiefly *Collier's* and *Good Housekeeping*—and yet, unlike most slick s.f., they have a freshness of concept and treatment to appeal even to the most jaded fantasy-specialist.

Unpublished in this country, but worth ordering through an import dealer, is Brian W. Aldiss' SPACE, TIME AND NATHANIEL (London: Faber & Faber, 12 *s.*, 6 *d.*). These 14 stories—mostly from *New Worlds* and other British s.f. magazines, but 3 hitherto unprinted—form an excellent introduction to a new young writer of marked individuality, whom you'll probably be seeing a good deal of in the future. (He makes his F&SF debut two months from now with a crazy kind of Christmas story.) Aldiss is quirkish, even freakish—possibly a little too eager to startle, to seem outré, but delightfully skilled at giving us queer glimpses of humanity, present and future, consistently inventive, amusing, pointed, and deserving your investigation in this book which adds up, as a whole, to more than the sum of its 14 individual "presciences" (as the volume is subtitled).

Last month I wrote at some length about the vein of British fantasy quite opposed to Aldiss' caprices: the sober, persuasive, cumulatively detailed realism of Clarke, Wyndham and Christopher. To this tradition belongs Rex Gordon's FIRST ON MARS (Ace, 35¢), published last year in England as NO MAN FRIDAY. Here the debt to Defoe (as the original title indicates) is great and explicit: this is frankly a Martian Robinsonade in which the first explorer of the red planet arrives with no assets for survival save a wrecked spaceship and the skilful hands and mind of a good engineer. The details of his survival are as ingenious and suspenseful as they are plausible; and a somewhat unfortunate shift toward mysticism and a Deeper Meaning at the end does little to harm one of the most engrossing recent specimens of straight solid *science* fiction.

Charles Eric Maine's HIGH VACUUM (Ballantine, 35¢) starts off in the same tradition; and the opening sequences of survival in the all-but-absolute vacuum of the lunar surface are fine. But then God help us turns up a female stowaway: pregnancy, murder and rape are a few of the developments, in a distasteful blend of soap opera and sensationalism. And the adjectives *persuasive* or *plausible* can hardly be applied to a novel in which the characters lived unharmed through several lunar nights in unheated space suits.

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James White's THE SECRET VISITORS (Ace, 35¢) makes no attempt at plausibility or even coherence. It's just another wild yarn on the theme of There Are Galactic Agents Among Us (I guess the merciful moratorium on that cliché is over), composed in contented ignorance of the techniques of prose fiction; but the same Double-Book redeems itself by containing Robert Silverberg's MASTER OF LIFE AND DEATH. In his second novel, Silverberg hits his stride with a powerfully effective picture of a man of the year 2232 precipitated into the job of Director of the Bureau of Population Equalization. In a world acting out the nightmares of Malthus, Popeek has become the one force for hope, and its Director must contend at once with a dozen different types of puzzling projects, all aimed at finding an answer to overpopulation—and in the midst of such dilemmas, a scientist goes and discovers immortality yet! Silverberg's success in maintaining complete clarity and strong narrative drive while manipulating unnumbered plots and complex concepts is a technical triumph, and results in a lively and enjoyable book.

Stanton A. Coblentz' HIDDEN WORLD (Avalon, $2.75) is a revision of his *Wonder Stories* serial, IN CAVERNS BELOW (1935), and the best Coblentz fiction that I've seen. He has always been most attractive when letting satire obtrude on s.f.; this time the book is virtually pure satire. The subterranean country of Wu has no more objective existence than Brobdingnag or Erewhon or Titipu; it is, like them, simply a mirror (if possibly of the fun-house type) to show us ourselves at our least attractive. Mr. Coblentz' weapon is sometimes the bludgeon (to shift metaphors) but it still draws blood; and you should find this somewhat old-fashioned tale amusing, agreeably absurd and occasionally discomforting.

Charles Goodrich's THE GENESIS OF NAM (Dorrance, $2) is allegory rather than satire, and even more oldfashioned; but this story of the creation of a transtellar Eden, if amateurish, is in its gentle and innocent good will more pleasing than many professional works.

The Defoe-derived English school of quiet plausibility turns up in non-fiction in Arthur C. Clarke's THE MAKING OF A MOON (Harper, $3.50), subtitled "the story of the Earth Satellite program." Precisely when Mr. Clarke can possibly have done so much intensive research I do not know—this is his fourth book so far in 1957. But Clarke is one of those prodigies who can combine prolific output with the highest standards of quality; and this is—to use an adjective which often indicates coolth, but which should mean the most unquestioning praise—this is a *satisfactory* book. It covers every-

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thing—the pre-history of the artificial-moon concept, the work done to date, the known plans for the immediate future (possibly the present by the time you read this), and the probable next stages—and covers it with care, simplicity, clarity, and even charm and wit.

In any such topical volume there are bound to be signs of haste: even the meticulous Mr. Clarke refers to a remarkable gas unknown to science, name of *zenon*. But G. Harry Stine's EARTH SATELLITES AND THE RACE FOR SPACE SUPERIORITY (Ace, 35¢) goes a little far. Apparently neither author nor editor reread first draft (or proofs), so that there's hardly a page without careless slips in grammar, coherence or typography. It's an exasperating book and difficult to get through, but worth the effort—at least for those, as I imagine most of you must be, who are strongly interested in the subject. Stine, the White Sands rocket engineer who writes s.f. as "Lee Correy," concentrates less on the immediate IGY Project Vanguard than on a speculative timetable for 1960-1980, culminating in a large manned satellite. Chiefly based on the ideas of Darrell C. Romick of Goodyear Aircraft, this schedule is shrewdly gimmicked and more convincing than most . . . which probably means that it's far too conservative and will be rapidly outdated.

Notes for collectors: James V. Taurasi and Ray Van Houten, editors of *Science Fiction Times*, have put out a first annual SCIENCE FICTION YEARBOOK. Like their news-magazine, this is a fan-publication of marked interest to professionals and even to the general reader. As a factual statistical survey of s.f. in 1956, it should settle at least as many arguments as it will, inevitably, start. To order it, send 50¢ to Fandom House, Box 2331, Paterson 23, N. J . . . FRANK KELLY FREAS: A PORTFOLIO (Advent, $1.50) proved a sharp disappointment to this particular (and possibly, in this case, over-particular) Freas fan. Its 16 black-and-white pictures (from a half dozen magazines, 1953-1956) are, for Freas, relatively unexciting: completely lacking the qualities of sex and humor, in both of which he excels, and often so closely related to the story originally illustrated that they're baffling out of context.

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There are a number of aspects of science-fantasy which Poul Anderson handles unusually, and at times almost uniquely, well, from broad farce to rigorous logic (scientific or supernatural). The two Andersonic skills that most concern us here are his ability to build up detail by detail (even in a short story) a convincing culture of the future, or, as in this case, of the infinitely remote past, and his power to tell a moving love story.

The Long Remembering

by POUL ANDERSON

CLAIRE TOOK MY ARM. "DO YOU have to go right away?" she asked.

"I'd better," I said. "Don't worry, sweetheart. I'll come back with a nice fat check and tomorrow night we'll go out and celebrate." I stroked her cheek. "You haven't gotten much celebration lately, have you?"

"It doesn't matter," she said. "It's enough just having you around the place." After a moment when we could not have spoken: "OK. Run along."

She stood there, smiling at me all my way down the stairs.

I caught the bus and rode it to Rennie's, thinking that I was a fortunate man in spite of everything.

His house was old, and there was nothing to mark it out from its neighbors. When I rang the bell, Rennie himself admitted me. He was a tall gray man with tired eyes.

"Ah . . . Mr. Armand." His voice was gentle. "You are punctual. Come in."

He led me down the hall to a cluttered living room walled with books. "Sit down," he invited. "Have a drink?"

"A little wine, if you please," I said. I looked out the windows to the undistinguished sunlight. A car went past, the newest and most blatant model. My leather chair was solid, comfortable; when I moved, its horsehair stuffing rustled dryly.

I needed that assurance of a real and everyday world.

Rennie brought in a decanter and poured. It was a pretty good Burgundy. He sat down facing me and crossed interminable legs.

"There is still time to back out,"

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he said with a half-smile. It faded, and he went on earnestly: "I won't blame you a bit if you do. This undertaking is not quite safe, and . . . I understand you're married?"

I nodded. That was no reason for retreat. It was, in fact, the reason for my being here. Claire worked, but there was a baby on the way, and even in my division—chemistry—a graduate assistant is not very well paid. Rennie's spectacular experiments had won him a large appropriation for his psychophysics department, and he offered good money to his subjects. In a few hours with him, I could earn enough to put me over the hump.

Still . . . "I didn't know there was any danger," I said. "It's not as if I were going back physically into the past."

"No." He looked beyond me, and the words came out stiffly: "But this is such a new thing . . . uncontrollable . . . *I* don't know how far back you'll go, or what will happen. Suppose the, er, the body you're in . . . suppose it has a bad shock while you're there. What would the effect be on you?"

"Why—" I hesitated. "No telling, I guess."

"And then there are always . . . psychological results. It'll take you days to get back to normal. Some of my subjects returned terrified, others were unaccountably depressed— Well, you may find yourself in a tailspin, Mr. Armand, though I imagine you'll pull out of it in a week or so."

"I can stand it." I buried my face in the wineglass.

"Later on, when I have enough data, it will be better," said Rennie. "Now about you: all I know is that you're a good hypnotic subject. And, yes, you claim French ancestry, don't you?"

"From the Dordogne," I nodded. "My parents came to America."

"It doesn't mean much," said Rennie. "The races of Europe are so scrambled. I'm going to try to send you back as far as possible. To date I've only managed a few generations." He sipped raggedly. "Do you understand the theory of temporal psycho-displacement?"

"A little," I answered. "Let's see . . . my world line through the space-time continuum goes back even further than my birth—it goes back through all my ancestors, branching off at each point where one of them was begotten. The mind, the soul, whatever you call it, is a kind of pattern which can be shunted down the world line into one of those ancestors."

"Good enough," he said. "At least you haven't swallowed this reincarnation nonsense. All I've done, actually, is systematize the work of a great many amateur experimenters who never quite realized what they had."

"Why can't you send me into the future?" I asked.

"I don't know," he replied. "I

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just can't—so far, anyway. Now you must be aware, Mr. Armand" —he became the parched professor, lecturing me as a shield against his own conscience—"your body will lie in a state of deep hypnosis for several hours. Your . . . mind . . . will be back sharing the brain of some ancestor, for the same length of time. You will not only be a spectator; you will actually *be* that ancestor. When you return, you will have the memories of what happened. That's all."

A shadowy dread was making my heart thutter, but I stood up, jerkily, "Shall we start?"

He took me into the laboratory and I stretched out on a couch. Certain drugs were injected and the hypnotic mirror began to spin, a whirling blot of light against a darkness that grew around me.

I fell into night.

I was Argnach-eskaladuan-torkluk, which means He Who Draws the Bow Against the Horse, but my true name I held secret from warlocks and the wind ghosts, and I shall not reveal it. When my first thin beard sprouted, I was given my open name because I made a bow and with it crippled one of the shaggy wild horses so that I could run it down and cut its throat and drag it home. That was on my Journey, which the boys make alone. Afterward we are taken off to a certain place in the dark, and the wind ghosts dance in aurochs hides before us, and the first joint of the middle finger is cut off and given them to eat. More than this I may not say. When it is over, we are men and can take wives.

This had happened— I do not know how long ago. The Men do not count time. But I was still in the pride of my youth. Tonight it was a cold pride, for I went by myself with small hope of returning.

Snow gusted across my path as I walked down the mountain slope. Trees talked in the huge noisy wind, and I heard the remote scream of a longtooth. Perhaps it was the longtooth which had eaten Andutannalok-gargut the time fall burned in the rainy forests. I shuddered and fingered the Mother charm in my pouch, for I had no wish to meet a beast with Andutannalok's ghost looking out of its eyes.

The storm was waning. I saw the low clouds break overhead and stars trembled between sere branches. Still the dry snow hissed across my feet and crusted the fur of my clothing. There was little but darkness to see; I felt my way with a blind knowledge.

I wore a heavy coat, trousers, and boots, whose leather should be proof against spearthrust. But the goblins had more strength in their arms than a Man. A hurled stone from one of them could smash my skull like a ripe fruit.

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And then my body would be left for wolves to devour, and where should my poor gaunt ghost find a home? The wind would harry it through the forests and up over the northern tundras.

I bore weapons: spear, bow, flint knife with thong-bound handle. The arrows were tipped with wolf bone, to bite the sharper, and the wooden spear had been fire-hardened with many chants by Ingmarak, the Ghost Man. In my pouch was the little stone Mother image, my fingers caressed her great comforting breasts, but it was cold and the wind shrieked and I was altogether alone.

Down below me I heard the loud chill brawling of the river, where it cut through the steep-sided valley. On its farther side was the goblin lair.

There were none in the cave to forbid my going after Evavy-unaroa, my white witch girl, but they had spoken against it and no one would come along. Ingmarak shook his bald head and blinked at me with dim rheumy eyes. "It is not well, Argnach," he said. "There is no good to be had in Goblin Land. Take another wife."

"I only wish Evavy-unaroa," I told him.

The elders mumbled and the children looked with wide frightened eyes from the inner cave.

I had won her only last summer. She was young and untaken, my eyes wandered and saw her with hunger, and she smiled back on me. They had all been a little afraid of her, though a more dear and merry creature had never walked the earth, and no one asked to borrow her after we had made the sacrifices. That suited me well enough.

The soapstone lamps guttered and flared, filling the cave with restless shadows, and the wind flapped the skin curtain at its mouth. We sat warm within, a good store of meat gloriously rotting in one corner, and folk should have been gay. But when I told them I was bound into Goblin Land to fetch Evavy back, fear walked into the cave and sat down with us.

"They have already eaten her," said Vuotak-nanavo, the one-eyed man who braided his beard and could smell game half a day's walk into the breeze. "Her and the unborn child both, they are eaten, and lest their ghosts do not stay in the goblin bellies but come back here, we would do well to lay another handax at the cave mouth."

"Perhaps they have not been eaten," I replied. "It is my weird to go."

When I had said this, there was no turning back, and no one spoke. Finally Ingmarak, the Ghost Man, rose. "Tomorrow we will make spells," he said.

There was a great deal we did on that day and in the twilight. All saw me take a lamp, and

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twig brushes and the little pots of paint, into the far reaches of the cave. There I drew myself with a bow, shooting the goblins, and painted my own face. What else was done I may not tell.

Ingmarak related to me what was known of the goblins. There were old stories that they had once held all the land, till the Men came from the direction of winter sunrise and slowly crowded them out. There had never been much fighting, we were too afraid of them and ourselves had nothing worth their robbery; they chipped their flints somewhat differently from us, but no worse, and seemed to have less need of warm clothes. Now they dwelt on the other side of the river, where no Man ventured.

But Evavy had gone to the river to fetch some of the stones in its bed. There were strong stones in that water, for it was believed to flow from the far north, where Father Mammoth walked the tundras and shook his tusks beneath the cliffs of the Ice. But Evavy wanted only those stones which were good to look on, to make a necklace for her child when it was born. She went alone because there were certain words to say, bearing a spear and a torch against beasts, and was not afraid.

But when she made no return, I went to the river bank and in the trampled snow saw what had happened. A goblin party had stolen her. If she still lived, she was on their side of the water now.

I heard it rushing wild and noisy as I came out of the forest. It was a long snake of blackness between white banks and icy trees, with here and there a dull gleam as of polished rock. The wind was dropping all the time, but a breath of cold came from the water and I saw ice floes spinning past.

During the day I had taken an ax and cut down a small tree. A flintheaded ax is not a good weapon, I think, but it is a useful tool. I found the trunk and the flattened branch I meant for a paddle. Now it was to cross the river and not be drowned.

I took off my boots and hung them around my neck. The snow bit my feet like teeth. Looking up, I saw the last clouds like black, breaking mountains. It was clear in the north, and the dead-hunters were dancing in the sky. I saw them whirling in many colors. For them I cut a lock of hair off with my knife, and stood by the river and said into the dying wind:

"I am Argnach-eskaladuan-torkluk, a man of the Men, who here gives you a piece of his life. For this gift, of course, I ask no return. But know, Sky Hunters, that I am bound into Goblin Land to fetch back my wife, Evavy-unaroa the white witch girl, and for any aid I may receive I offer a fat part of every kill I make for the rest of my days on earth."

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The huge curtains of light flapped among the stars, and my voice was very small and lonely. I felt the cold around my feet eating into the bones, and launched my tree with a grunt.

At once the river had me, I went down the stream, driving my paddle into waters gone crazy and foaming about me. I was numbed in the feet, numbed in the head. What happened to me seemed to be happening to a stranger far off while I, the I of my secret name, stood on a high mountain thinking strong thoughts. I thought that it was wrong to sit with feet in bitter waters, and that by fire and scraping a log could be so hollowed out that men might sit within it and fish.

Then my deadened toes bumped on stones, the log grated in the shallows, and I scrambled ashore drawing it after me. I sat for a while rubbing life back into my feet with a fox skin. When that was done I put on my boots and started into Goblin Land, marking well the path I took.

The goblins had been seen often enough on their side of the river, hunched and furtive, so I knew they could not live very far away. I went at an easy pace, snuffing the now quiet air for smoke that would guide me to their den. I was somewhat afraid, but not much, because my weird was on me and there could be no changing whatever was going to happen.

Nothing had been quite real to me since the evening I saw goblin tracks across Evavy's bootprints. It had been as if I were already half a ghost.

I do not understand why I should have lost all wariness toward Evavy, I alone of all the Men. They agreed she was tall and well shaped, brave of heart and free with her laughter. But she had been born with blue eyes and yellow hair, like the goblins themselves. It was said of old, to be sure, that there had once been matings between Men and goblins, so that now and again the light-colored strain appeared in a cave; but no one alive could remember any such child. Thus there was clearly a Power in Evavy-unaroa, and folk were just a little afraid of her.

Nevertheless, I, Argnach, had not been afraid. I knew that the Power which dwelt in her was only that of the Mother. It was the same Power which makes a bull elk stand and die for his mates.

The unmistakable sound of an elk herd crashing through young trees put that thought in me. There was a dim wintry light now, stealing between the branches of twisted firs. I could see the signs of plentiful game, more than we had on our side of the river. Much more!

And there were coming to be more mouths in our cave than the hunting men and the gathering women and fishing boys could feed.

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I came out on a ridge which climbed northward to end in a blackness across the stars. And the low chill breeze brought me smoke.

I felt my body prickle. Already, then, I was at the goblin lair. If they were indeed the masters of such warlock powers as the story went, I would be stricken as I neared them. I would fall dead, or be turned to a snake and crushed underfoot, or run screaming and foaming through the trees as folk have been known to do.

But Evavy was in that cave.

Therefore I made myself into smoke, drifting through the shadows, crouching under boulders, flitting from tree to tree, with my bow strung and an arrow between my teeth. The sky was lightening, ever so faintly in the east, when I saw the goblin cave.

They kept a fire burning at its mouth. Ingmarak had told me that in his youth the Men did the same, but now it was no longer needful —the beasts knew who we were and dared not approach. Here there were more beasts than in our country. I had thought this was due to the goblin warlocks, raising plentiful game out of the mists. But as I stood peering through a spruce thicket at the fire a very great thought came to me.

"If they have the Power," I whispered to myself, "then they should not be afraid of lion or longtooth. They should not need a fire in front of their dwelling. But they do keep one. Perhaps, O Sky Hunters, this is because they have no Power at all. Perhaps they are not even such good hunters as the Men, and for this reason there is more game in their country."

I shuddered with the thought. I felt a strength rising in me, and there was no more fear at all.

Very softly, then, I crept over the last open stretch to the goblin den.

There was an old one tending the fire. His tawny hair had grown grizzled and hung lank to his wide shoulders. This was the first time I had seen a goblin so close, and the sight was dreadful. Much smaller than me he was, stooped over and bow-legged, but with great dangling arms. His forehead was low, the eyes nearly hidden under huge brow ridges, and through the scanty beard I could see that he had no chin.

He stamped his feet and beat hands. His breath was frosty against the paling sky. I saw that his dress was rude, little more than a few stinking hides clumsily lashed together, and he was barefoot in the snow.

I had been moving upwind. Now the breeze changed. His wide nostrils flared and he swung that big shaggy head around.

I broke into a rush across the last few man-lengths. The goblin saw me. He croaked something in his tongue and snatched for a club.

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My bow and arrow seemed to jump of themselves to readiness. The cord snarled and the goblin lurched, clawing at the shaft in his breast. In the strengthening light I saw how his blood shouted red on the snow.

I stood in the cave mouth, necking another arrow, and roared for Evavy.

A goblin came out with a spear in his hand. I gave him my second shaft. There was one just behind him whose club rose up. I snatched a brand from the fire and crammed it at him. He fell backward to escape the flame.

It boiled with naked bodies in there. I could dimly see the squat, ugly women shambling to the rear, to form a wall in front of their cubs and bare their teeth at me. The goblin men bumbled in half-darkness, crying out, and I knew of a sudden that they were afraid.

"Evavy!" I shouted. "Evavy, it is Argnach come for you!"

For one lost heartbeat, I knew fear again, fear that her ghost would answer from a goblin mouth. Then she had pushed her way to the front, and I looked into eyes like summer's heaven and felt tears stinging my own.

"This way!" I loosed another arrow blind into the thick smoky gloom. A goblin wailed. I gave Evavy my spear. "Now we must run," I said.

They came pouring after us, howling and grunting. Evavy's feet paced mine, her hair streamed in my face. They had not taken her clothes, but even through the heavy fur I could see the grace of her.

Down the slope we bounded, into the forest. The goblins swarmed in pursuit, but a glance across my shoulder told me that we were drawing ahead. They could not run as fast as Men. Once, as we crossed a snow-buried meadow, a stone whooped past me with more speed than a Man could give it. But they had no bows.

We came gasping to the riverbank where my log waited. "Get it launched!" I cried.

While she strained at its weight, I set my quiver on the ground before me and readied an arrow. The goblins burst out of the icy trees. I wounded two of them, then one got within arm's length. He snatched for the bow and it cracked in my hand. I drew my flint knife and stabbed him.

Someone else thrust at me, but my leather coat turned the wooden point. Evavy jabbed with my spear, hurting the naked creature. The log was almost afloat. We waded out, gave a last push, scrambled onto it, and were in the river's arms.

I looked back. The goblins were yelling and shaking their hairy fists. They must not have kept the log on which they came raiding. I laughed aloud and dug my paddle deep.

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Evavy wept. "But you are free!" I said.

"That is why I weep," she answered. The Earth Powers are strong and strange in womankind.

"Did they hurt you?" I asked.

"No," she said. "There was one . . . I had seen him before, watching me from his side of the river. He and some others stole me—but they did me no harm, they fed me and spoke gently. It was only that I could not go back to you—" And again she wept.

I thought that with her fair hue like their own, she must indeed have been a lovely sight even to the grim goblins. They would have counted it well worth the risk to steal her and have her for their Mother . . . even as I was driven to steal her back.

I stopped my paddling for a little to stroke her hair. "It is well," I said. "There has been a weird in this. We were afraid of the goblins because they look so strange that we thought they must command a Power."

The river hallooed in the first long light of the sun. My paddle bit the water again. "But it was not true," I said. "They are poor and clumsy folk, slow on their feet and slow in their souls. Our fathers who now hunt in the sky on winter nights drove the goblins from our lands—not with spears and bows, no, but because they could think more deeply and run more swiftly. Since they could do this, they could kill more game and thus have more children. We can do likewise.

"When summer comes I shall gather the Men and cross the river. We will take the goblin lands for our own."

We struck the shallows of our side and waded ashore on numbed feet. Evavy clung to me, her teeth clapping in her head. I wanted to make haste, back to the fires of the cave and the great song of victory I would sing for the Men. But I looked once across the water.

The goblins had followed us. They stood clustered there on the other bank, staring and staring. One of them reached out his horrible arms. It was a goodly way to see, but I have sharp eyes and I saw that he was weeping.

Since he also cared for Evavy, I shall try to spare his life when we cross the river.

I came out of the long sleep. There was a floorlamp burning and night beyond the drawn curtains.

Rennie guided me back to the living room and offered a drink. It was a while before we spoke.

"Well?" he said at last. "Where . . . when did you go?"

"A long way," I said. The strangeness of having been another man still filled me, I was half in a dream. "A hell of a long way."

"Yes?" His eyes smoldered at me.

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"I don't know the date. Let the archeologists figure it out." I told him in a few words what had happened.

"The Old Stone Age," he whispered. "Twenty thousand or more years ago when Europe was still half covered with the glacier." His hand reached out to close on my arm. "You have seen the first true humans, the Cro-Magnon people, and the last Neanderthal ape men."

"There wasn't that much difference between them," I muttered. "I feel sorry for the Neanderthals. They tried hard . . ." I stood up. "Let me go home and sleep it off."

"Certainly. You'll come back tomorrow? I want to record a full statement from you. Everything you can remember—everything! Good God, I never dreamed you'd go so far."

He guided me to the door. "Do you feel all right?" he asked.

"Yes, I'm OK. A little muzzy, but OK." We shook hands.

"Goodnight," he said. His tall form stood black in the lighted doorway.

I took a bus home. It whined and roared so that for a moment I was tense with fear—what monster was this booming through the forest? what stenches of alienness were insulting my nose? Then I remembered that it was another man whose skin I had inhabited, and he was twenty thousand years in his grave.

The world still didn't seem real to me. I walked through a winter wood, hearing the elk bellow, while ghosts crowded about me and twittered in my ear.

A little more solidity returned when I climbed the stairs and entered my apartment. Claire put down her cigaret, got up and came to me. "What's the word, darling?"

"It was all right," I said. "I'm kind of tired. Make me some coffee, will you?"

"Of course . . . of course . . . but where did you *go,* sweetheart?" She took me by the hand and dragged me toward the kitchen.

I looked at her, clean and kindly, a little plump, creamed, rouged, and girdled, with glasses and carefully waved hair. Another face rose before me, a face burned brown with sun and wind, hair like a great yellow mane and eyes like summer's heaven. I remembered freckles dusted across a nose lifted sooty from the cooking fire, and the low laughter and the work-hardened small hands reaching for me. And I knew what my punishment was for what I had done, and knew it would never end.

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Now and Then

by JONATHAN ROSENBAUM

WHEN THE TIME MACHINE STARTED, I realized that I had forgotten to ask the professor its destination. But under the influence of a heavy dose of euphorin, it hardly mattered to me. To escape the tensions of the present, almost everybody I knew was taking the same or similar tranquilizers.

As I sat strapped to my seat, alone in the elevator-shaped time machine, I began to feel a peculiar kind of dizziness sweep over me, in spite of the euphorin. I didn't feel air sick—not sea sick—not space sick, but *time* sick. I could feel my fingers tighten on the pencil in my hand, until the sensation passed away.

When the time machine began to move more smoothly, I gazed out of the plastic window and witnessed a great blur—matter, moving through time at a high speed.

Finally, when the machine stopped, the door opened and I saw what I considered a beautiful sight: Nature, undisturbed.

Not towering buildings, blotting out the sky with artificial majesty. No machines—only nature, undistorted by man.

I saw, in the distance, a brawny man in a cave, clothed in animal skins. He was rubbing two sticks together to build a fire to cook what he had just killed. This must be around 100,000 B.C., I thought. Man has discovered fire.

I reached for my pad and pencil and then, as the professor had instructed me, I wrote down everything I saw in shorthand.

I wrote about the trees, the other plants, and particularly the things within the cave: the caveman's crude weapon, and the faint carvings on the wall which I couldn't make out clearly from such a distance.

My senses were calmed by the euphorin, but the spectacle before me unleashed my imagination. If only the world had stayed this way, I thought dreamily. If only man hadn't taken over, and nature had remained king!

As I was completing the fifth page of my pad, the doors of the time machine closed and I was once again whizzing through time.

When I reached the present, I opened the door enthusiastically and began to talk.

But first, the smiling professor had something to say.

"How does it look, fourteen years from now?" he asked.

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—Continued from other side

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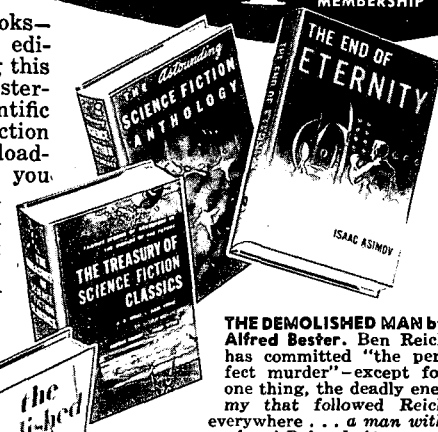

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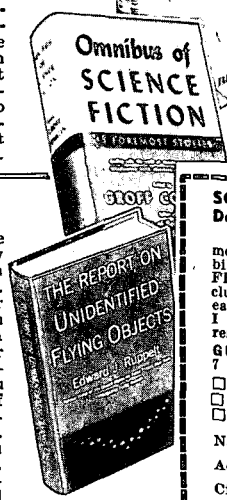

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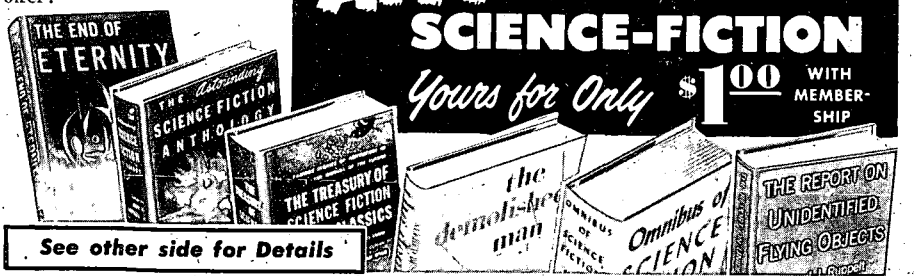
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